

14 Caissons are sunk for Narrows bridge

24 Vibrate wire mesh into fresh concrete

40 What's behind equipment auctions?

CONTRACTORS and ENGINEERS

A Bittenheim Publication

MAGAZINE OF MODERN CONSTRUCTION

APRIL 1961





This mile-long culvert puts storms in their place

Storm water will run through this mile-long culvert and not through the backyards of residents of Warren, Michigan. Serving as the Bear Creek Inter-County Drain, this giant sectional plate structure is built of 880 tons of USS AmBridge Sectional Plate Arches and Pipe Arches. Spans vary from 14 to 24 feet, and rises range from 8 feet to 11 feet. Greenfield Construction Co., Detroit, was the prime contractor. Sectional Plate was fabricated and erected by American Bridge. □ USS AmBridge Sectional Plate is strong . . . won't crack or break. Sections are prefabricated from tough, zinc-coated corrugated steel. They're highly corrosion resistant and simple and inexpensive to assemble. Installation is fast because forms aren't used. No need to wait out costly curing time. USS AmBridge Sectional Plate is available in a complete range of sizes and is fabricated to meet all federal and state specifications. American Bridge Highway Products are designed to add speed, strength, and permanence to highway and drainage programs. Contact one of our offices for literature and information on American Bridge Highway Products.

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Division of
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APRIL, 1



Designed by Johnson and Anderson, Engineers

General Contractor: Greenfield Construction Co.

This mark tells you a product is made of modern, dependable Steel.



USS AmBridge Highway Beam Guard Rail and Posts help safeguard traffic. This rugged steel beam guard rail is easy to install and highly visible.

USS AmBridge I-Beam-Lok bridge flooring is strong, yet lightweight. Available in open and filled types—it is ideal for long spans, movable spans, or for reflooring old bridges where weight is a vital factor.

CONTRACTORS and ENGINEERS

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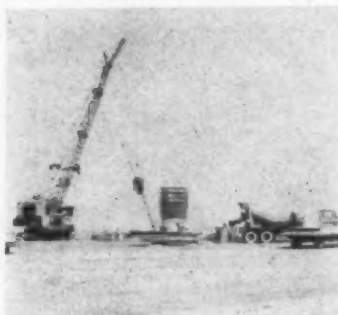
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COVER:

An all-purpose lube rig made in the shops of the Leo F. Piazza Paving Co., San Jose, Calif., services a Buffalo-Springfield roller on a paving job in a new San Jose development. Mounted on a Utility semitrailer pulled by an International R-190, the rig carries 1,800 gallons of diesel fuel and 1,100 gallons of gas; Lincoln and Graco reels for oil, grease, water, and air; a Quincy compressor; and a Kohler generator.

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Associated Publications: The American City Overview Mart

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APRIL



operation double duty

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One ring of Wellpoints encircled excavations for four 75' diameter digestors. Another ring encircled two 125' diameter clarifiers. The two rings were connected to the single pump station by a common suction line. The strategic location of this double duty set-up dewatered the entire plant site with a minimum of equipment and effort.

Further proof of time and money saving advantages of GRIFFIN Wellpoint engineering, supervision and equipment.



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Robert C. Burton dies; C and E publisher

■ Robert C. Burton, publisher of **CONTRACTORS AND ENGINEERS**, died last month at the age of 45 from lung cancer. He was also a director of Bittenheim Publishing Corp. Burton joined C&E ten years ago as a sales representative in Cleveland, and in 1955 was made regional manager of the Cleveland office. In March, 1960, he was appointed publisher.

Born in Cleveland Heights, Ohio,

Burton attended Cleveland College of Western Reserve University. He held posts in advertising agencies and in advertising departments of industrial firms before coming to **CONTRACTORS AND ENGINEERS**. During World War II he served in the U.S. Army from 1942 to 1945. He made his home in New Canaan, Conn.

He is survived by his widow, the former Jayne Clark, a native of Cleveland; an 11-year-old daughter, Lacey; an 8-year-old son, Lance; his mother; and two brothers.

Robert C. Burton

In the spring of 1951 several promising candidates were interviewed in Cleveland for a position selling advertising space for **CONTRACTORS AND ENGINEERS** in the Ohio-Pittsburgh territory. After careful consideration, the man selected for the job was Robert C. Burton. Never for one second did Bittenheim Publishing Corporation have occasion to regret its choice of ten years ago.

Bob's conscientious work in advertising sales, and the host of friends he won for himself and for this publication, made him the front runner when the top operating position, publisher of **CONTRACTORS AND ENGINEERS**, opened up early in 1960.

Bob Burton immediately proved to be as much of a "natural" at publishing as at selling. But he was scarcely launched on his challenging new assignment and scarcely settled with his family in their New Canaan home, when he fell victim last fall to what is surely one of the world's worst diseases, lung cancer.

Bob Burton died on March 17 in Norwalk Hospital, taking leave of a devoted family, and of a large group of associates in publishing who will always remember him with affection coupled with admiration for the indomitable courage and good cheer he displayed through the last six months of his life. He literally

never gave up, and the reading pages of this very issue show evidence of some type-face and layout improvements which he worked over for hours during his first hospitalization.

Bob also leaves an army of personal friends from coast to coast. Many of them knew the nature of his illness almost from the start, and they turned themselves inside out with messages of faith and support. Answered or unanswered, every one of these was treasured by him, by his family, and by his business associates. To read them was and is to know how many people's lives have been enriched because their paths crossed that of Robert C. Burton.

Donald V. Bittenheim

PRESIDENT

BITTENHEIM PUBLISHING CORP.

Editorial

Good news from labor

Labor leaders, meeting in plush Florida resort settings this past winter, have established a warmer and more hospitable climate for contractor-union relations in the construction season ahead. The accord in construction applies to both defense and industrial work. Taking the bows for this statesmanlike attitude in both areas is the Building and Construction Trades Department of the American Federation of Labor and the Congress of Industrial Organizations.

In defense work, the executive council of the unions, which embraces some three million construction workers, told its members through their locals to avoid quickie walkouts at missile sites. The workers must utilize all available negotiation resources and, this failing, get specific permission from the union before resorting to strikes or picketing at the defense bases. Violators will be disciplined and can expect no support from state or local union councils. Such a firm stand, AFL-CIO chiefs felt, would eliminate the wildcat work stoppages that in the past have plagued the missile bases and delayed completion.

The same AFL-CIO department, composed of 18 national and international building-trades unions, also gave a no-strike pledge to the National Constructors Association, made

up of 28 engineering and construction firms engaged in the design and construction of petroleum refineries, steel mills, chemical plants, and power-generating facilities. This nation-wide agreement to prevent strikes and to settle disputes through peaceful, orderly procedures is a stabilizing force in the construction industry, and it should result in more jobs both for the contractors and for the members of the building-trades unions. It will assure major American industries that their expansion projects will be completed on time, and within the estimated cost.

The plan, adopted by the NCA and the AFL-CIO, recognizes that many potential work stoppages on industrial construction projects can be avoided if sources of trouble, jurisdictional or otherwise, can be spotted in advance. Accordingly, all-out efforts will be made in pre-job conferences to detect possible grievances before the project even gets under way. Close working relationships will be established between responsible representatives of NCA member companies and the unions. The pact also calls for "last resort" arbitration of a dispute by a national arbitration board whose decisions would be binding upon both parties. Both sides realize, apparently, that in practically all strikes every-

body loses and nobody ever wins.

In the case of the missile bases, the move by labor may have been influenced by continued Congressional interest as to the cause of construction lags at these vital defense sites. The Air Force maintains that the delay is not in the production of missiles, but in the base-building program of launching facilities for 450 Atlas, Titan, and Minuteman intercontinental ballistic missiles. Started in 1957, this top-priority program is behind schedule. The Atlas part, for instance, has only nine missiles in place and these are at surface sites only, with none built in the preferred underground, protected silos. Congressional hearings under Sen. John L. McClellan (D., Ark.) will be probing into these delays to ascertain whether they are caused by labor, construction contractors, the U. S. Army Corps of Engineers, or the Air Force itself.

Contractors have complained of red tape and poor direction by the Corps of Engineers due to Air Force pressure to meet unrealistic completion dates. By controlling the money, the Air Force has taken over the administration of the contracts, according to the contractors, and the Corps of Engineers cannot make impartial determinations of modifications to the contract, or payment to the contrac-

tor to cover such modifications.

In one case, for instance, a contractor performed work under a modification during April, May, and June, 1960. Yet he could not collect the approved negotiated profit of \$27,000 for this work until February, 1961. When the contractor figured the total interest charges on the money involved, plus the costs incurred in trying to collect payment, he wondered if he would have been better off if he had never got the job.

Because of the very nature of this work, in a new field where neither agency nor the contractor can use precedent as a guide, there are bound to be some snafus. ICBM's are still more or less in the development stages, yet bases must be built with unconventional pads from which to launch these strange missiles. Moreover, they are being built in peacetime under competitive bid contracts that in some respects resemble the costly "crash" program of wartime. Add management-labor disputes to inter-service jurisdictional differences, and some delay is inevitable.

But the bid by the unions for labor peace is a step in the right direction. That may be just one less area in which the Congressional investigators will have to expend their energies.



INTERNATIONAL CONSTRUCTION EQUIPMENT EXHIBITION

Sponsored by:

The Federation of Manufacturers of Construction Equipment
The Federation of Civil Engineering Contractors
The National Federation of Building Trades Employers

CRYSTAL PALACE
London: June 15-24, 1961

THE most comprehensive display of plant, machinery and equipment ever assembled in one place for the world's building and civil engineering industries will be arranged on a magnificent 32-acre open-air site . . . with extensive proving grounds for equipment of every kind to be operated under normal working conditions.

The Construction Equipment Exhibition provides a unique opportunity for buyers, contractors, builders, engineers and surveyors to inspect the finest range of plant and equipment the world has to offer . . . and to investigate at first hand the latest techniques and newest equipment.

Details and complimentary trade tickets from the organizers:

INDUSTRIAL AND TRADE FAIRS LIMITED
COMMONWEALTH HOUSE, NEW OXFORD STREET.

LONDON, W. C. 1

Daily 10 am to 6 pm (except Sunday) last day 10 am to 5 pm

Service data stenciled on each machine

What better place is there to keep maintenance information relating to a particular machine than right on the machine? Answering the question in a practical way, general contractor A. D. Drumm, Jr., Fallon, Nev., stencils a lot of data right on his equipment.

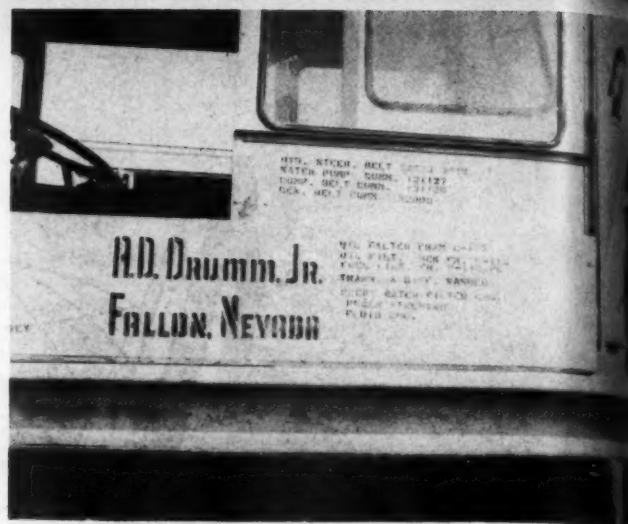
For example, on one side of the cab of one of Drumm's new Challenge-Cook Earthking haul units, the following information is stenciled: the make and serial numbers of the V-belts for the hydraulic steer, water pump, compressor, and generator, and the make and numbers of the oil and fuel filters. In addition, there are spaces for the service crews to indicate when the transmission, differential, water filter, and power steering were serviced.

Of course, this and much of the other information stenciled on this contractor's equipment can be found in the service manual for that machine. But out on the job, a mechanic changing a belt or a serviceman changing a filter does not have to look up the numbers in a book—he doesn't even need to have the book with him. The necessary information is right there, painted on the machine.

The same applies to service records. Those items included in the daily service routine need not be stenciled on a machine. But those items done at less frequent intervals must be recorded somewhere. Keeping a written record is extra work, and the record may be lost or overlooked. Depending on the serviceman to remember them introduces a chance of human error. Marking them right on the machine is simple and positive.

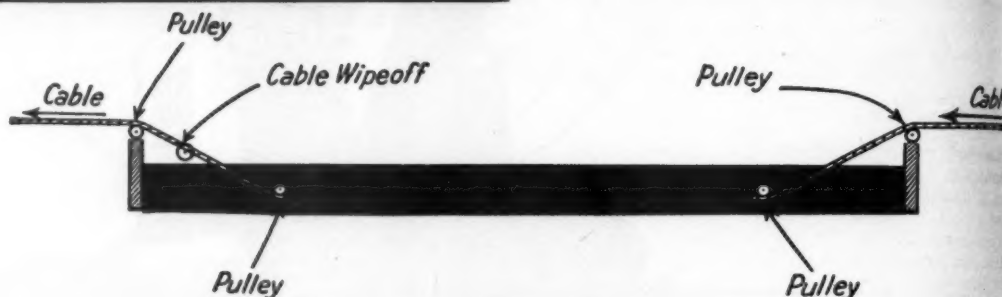
The serviceman handling a particular service uses a felt-tipped pen to note the date in the proper space following the stenciled data. Every time he or anyone else looks at the machine, the information is there in plain view. Even when the rigs get dirty, these notes are not obscured, and they stand out plainly when the dirt is washed or wiped off.

Drumm, who operates under the name of Silver State Construction Co., believes that the system saves money in several ways. It eliminates the keeping of some service records. It saves time for servicemen replacing parts such as filters, belts, and cable. It eliminates the danger of forgetting or neglecting the items that require occasional service. It saves on equipment life and maintenance because there is little likelihood of using wrong parts or lubricants or of neglecting essential servicing.



LUBE LOGIC

5 new ways to



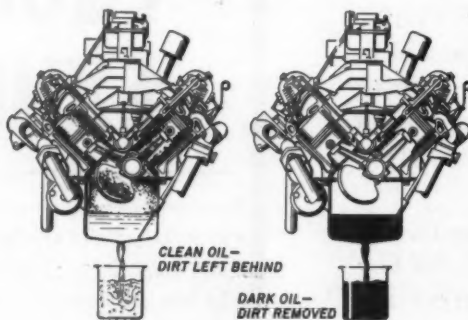
Warm bath restores wire rope

The best way to get lubricant inside a cable, where it's really needed, is to immerse the cable or wire rope every 500 hours or so in a bath of warmed-up Texaco Crater A lubricant. It pays off by giving you far longer service life than you would get simply by applying Crater A externally.

This warm-bath treatment requires a horizontal trough to hold the lubricant. The trough should be fitted with pulleys to keep the cable completely submerged while it's passing through. A burlap collar should be rigged to wipe

off excess lubricant as the cable leaves the box. An immersion of about a minute will allow the lubricant to work well into the strands.

This process is *not* an alternative to other lubrication. You should continue to clean the cable and apply Crater A externally every 10 to 100 hours, depending on the type of work the cable is doing. Remember also to be very sparing with lubricants on cables that wind on clutch-equipped drums, and never lubricate cables that are dragged in dirt.



Dark engine oil... sign of a hard worker

Here's a motor-oil misconception that's still common enough to need discussion. Some folks think that the better an engine oil is, the more likely it is to come out as clean as it went in. The truth of the matter is just the other way around. A good detergent-dispersant oil holds onto dirt like an old friend. It keeps dust, soot and carbon in suspension, and carries it out of the engine when you drain the oil. Oil that looks clean when you drain it from the crankcase is a sign that these contaminants may still be inside the engine. Moral: oil that darkens in use is really doing its job.

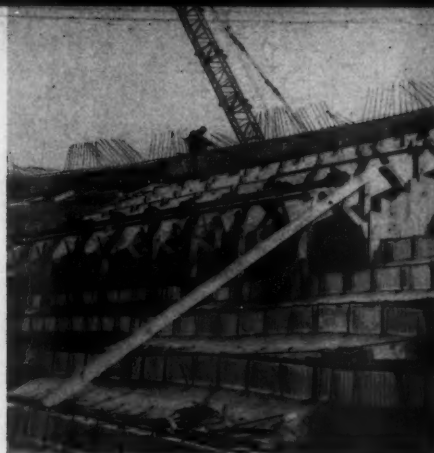


No-sweat way to adjust crawler treads

Crawler treads are easier to adjust if you dab a little Texaco Threadtex on the adjusting screws. The Threadtex stays put through months of service, keeps the screws free-turning and corrosive-proof. Another good use for Threadtex is on track bolts, when you're making up track. A little dab of Threadtex on the bolts will save a lot of time and work in taking down track after it has been in service.



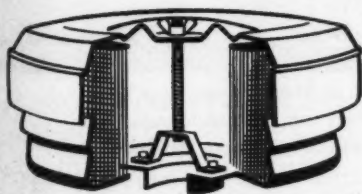
Fast forming method for circular steps



Ways to trim downtime

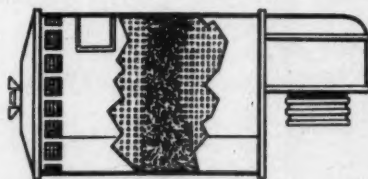
Key points on air filter maintenance

In a day's operation a typical engine inhales several thousand cubic feet of air, and on a construction project all that air is probably loaded with abrasive dirt and dust. Good air-filter maintenance is the only way to make sure your engine gets the air and *not* the dirt. Here are some maintenance tips that will keep your air filter working better through thick and thin.

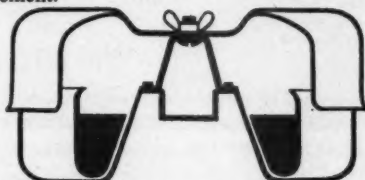


Dry type air cleaners (the ones with the fluted paper element) should simply be shaken or tapped lightly to remove dirt, and reinstalled. Never clean dry-type elements with kerosine or diesel fuel.

Additional precautions: empty centrifugal pre-cleaners when the glass container is half full; don't remove the oil cup when the engine is running.



If your filter is the wire gauze type, and you want to re-use the element, wash the gauze in kerosine or diesel fuel, shake it dry (*don't* blow it with compressed air) and re-oil it with SAE 40 or SAE 50 oil to coat the element.



Oil-bath type air filters won't function properly if there's more than a half inch of sediment at the bottom of the oil reservoir. Check the sediment level by sticking a screw-driver down into the oil, and if you're anywhere near the half-inch level the bowl should be cleaned out and refilled. Also, inspect the filter every 5 to 50 hours to make sure the oil itself is at the right level. Every 500 hours the whole cleaner should be dismantled and cleaned, and refilled with new engine oil of the same grade used in the crankcase.

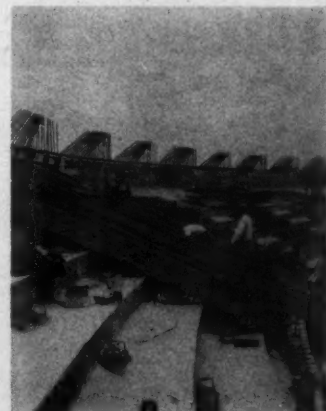
An efficient method of forming the steps of a bowl-shaped assembly hall for the University of Illinois at Champaign, Ill., is saving money for the contractor.

Felmley-Dickerson Co., Urbana, Ill., has devised an ingenious gang-forming system for the circular steps. Each form takes in four steps for a width of about 20 feet. The frame of the form is made of 2 x 10's on 2-foot centers. The 2 x 10's are held in position by two angle-iron cross members. In forming the rise of each step, 1-inch lumber is nailed to vertical 2 x 4's that are bolted to the frame. The 1-inch form lumber is curved to fit the arc of each particular step in the structure.

Vertical legs at the low and high sides of the frame hold the form at the proper height. The form is held in position on the high side by wires running to reinforcing steel in previously placed concrete. On the low side, the form is braced with 2 x 4 kickers.

Since this a circular auditorium, the steps (which carry the seats) form a series of concentric circles. Each step is on a separate circle and requires a form of slightly different curvature. Therefore, each gang form must remain at the same level as it is moved around the auditorium.

Beneath each of the steps is a duct for the circulation of air. This hollow space in the step was ingeniously formed by using corrugated galvanized sheet metal. The 26-inch-wide sheets were prebent at the factory to conform to the shape of the void. Each sheet was nailed in place, either to the concrete or to the plywood forms.



New Texaco movie can help boost your profits



This factual, down-to-earth presentation shows you how 1% of your total budget (the amount usually spent on lubricants) can minimize a major cause of equipment downtime.

SEE: How the biggest engineering job ever undertaken was 90% lubricated with only four different products.

SEE: How one contractor lubricated 21 different types of equipment with only seven products.

SEE: "When the Wheels Stop, Your Profits Go" — Texaco's newest sound and color movie.

FOR AN EARLY SHOWING contact your Texaco Contractor Representative now.

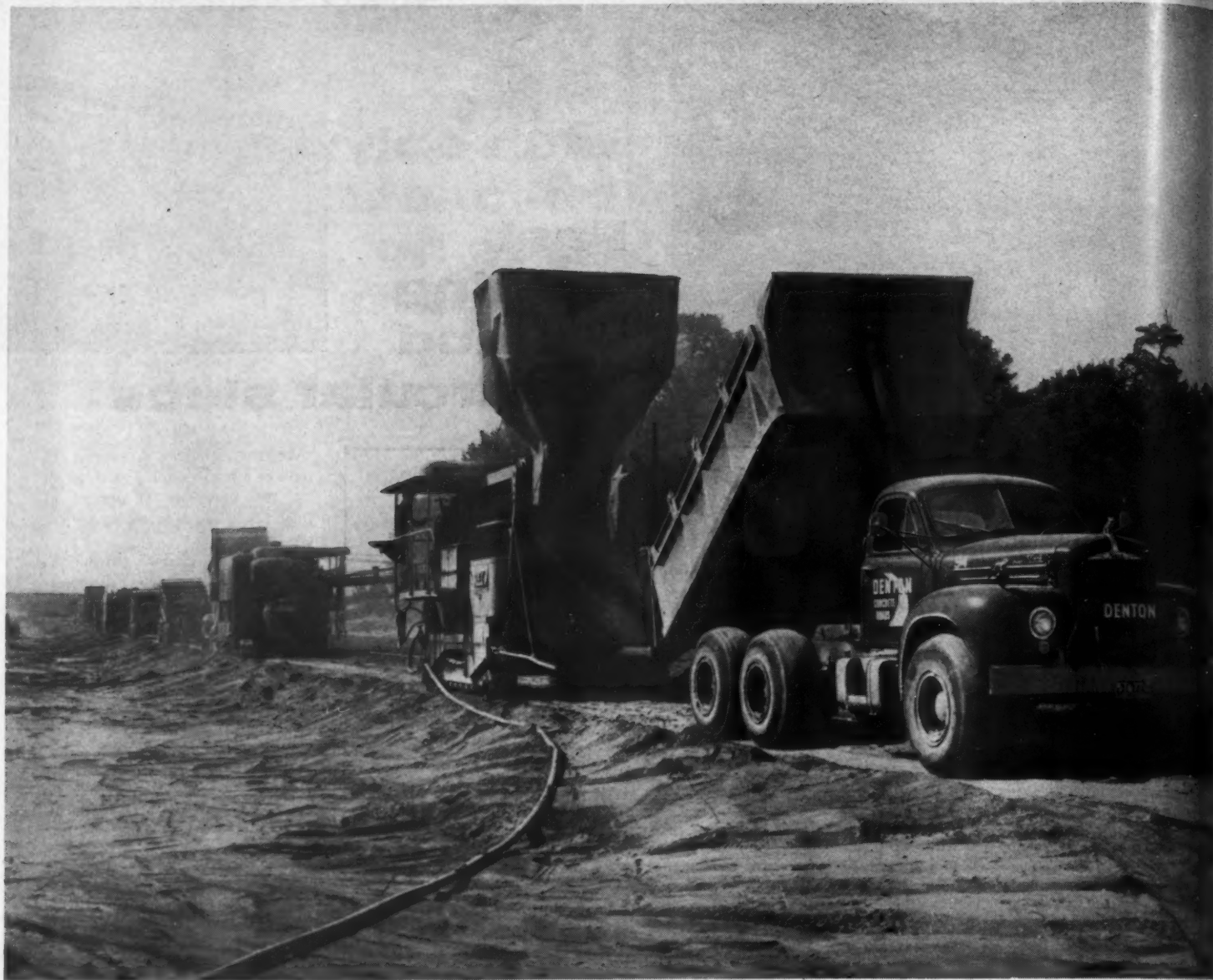
TEXACO LUBRICATION ENGINEERS

Every month or so we'll bring you a batch of "sleepers"—little angles, so easy to overlook, where big savings in time and money can be made. But month in, month out, your local Texaco Man is your best source of money-saving lubrication ideas. Don't forget that "Lubrication is a major factor in cost control." Texaco Inc., 135 East 42nd Street, New York 17, N. Y.

TUNE IN: TEXACO HUNTLEY-BRINKLEY REPORT, MON. THROUGH FRI.—NBC-TV

TEXACO
Throughout the United States
Canada • Latin America • West Africa





A Mack B-42 has just finished loading a paver and is ready to return to the batch plant for the next load. The outstanding tractive characteristics of the famous Mack Balanced Bogie tandem rear axles with exclusive PowerDivider and special balloon tires successfully eliminated the problem of sandy hauling conditions.



Mack batch trucks line up in plant yard. Same Mack B Models that established record for Denton in 1958 and again in 1960 have been in constant operation for as long as four years.

Denton Construction Company's record-breaking performance in the summer of 1958 was described in this advertisement. The same Mack trucks were on the team when the new paving record was set.



WINNER AND STILL CHAMP!

The record for a single day's concrete paving footage has been broken again by Denton Construction Company, Grosse Pointe Woods, Michigan. Topping their 1958 record by a substantial margin, Denton placed 8,036 feet of 9" by 24' reinforced concrete slab in a 12-hour working day.

Handling 3,898 batches required to cover the mile and a half strip were *the same Mack trucks that made up the previous record-breaking team*. Many of these B Model dumpers had seen four years of constant use, but their unflinching performance and perfect availability kept four pavers going full blast throughout the entire operation.

Says Ed Denton, vice president of Denton Construction Company, "Steady, flawless, high-speed paving on all jobs is our key to profits. This places a premium on good trucks—our main reason for using Macks."

Wherever your jobs call for standout performance, fuel economy, low maintenance or over-all earning capacity, you'll find Mack trucks the logical choice. For the trucks you need to get jobs done on schedule, and at a profit, see your Mack branch or distributor. Before you buy another truck, get the facts on Macks. Mack Trucks, Inc., Plainfield, New Jersey. Mack Trucks of Canada, Ltd., Toronto, Ontario.

MACK FIRST NAME FOR TRUCKS

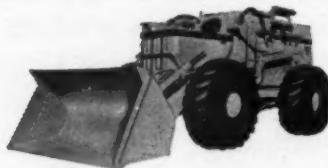


How To Effectively Key Your Bidding And Buying!

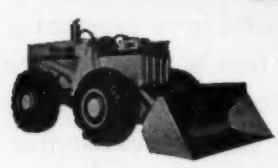
Making a successful bid and coming up with an adequate profit is a rare art in these times, but *it can be done* if machine capabilities and job requirements can be closely and accurately matched . . . TROJAN gives you the opportunity to make the most of your own experience and judgment in matching job and machine for maximum profit . . . With 7 machines available in lifting capacities of 7,000 to 24,000 lbs., with bucket options, power options and attachment options; you can key bucket capacity to required power with almost pin-point accuracy . . . There's no need to compromise — no need to buy more or less work capacity than you actually need . . . And, in addition, with every TROJAN you get the tested and proven features of design and construction that permit your operator to tackle the toughest jobs hour after hour, day after day — and complete them safely, swiftly and profitably . . . Most TROJANS sell themselves to hard-boiled buyers at competitive demonstrations against any machine on the market because they are built right, priced right and are 'honeys' to handle . . . Want more details or a field demonstration? Just call your nearest Trojan distributor.



AD NO. 44-27



MODEL 404
LIFTING CAPACITY 24,000 LBS.



MODEL 304
LIFTING CAPACITY 18,000 LBS.



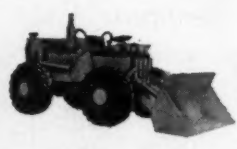
MODEL 254
LIFTING CAPACITY 15,000 LBS.



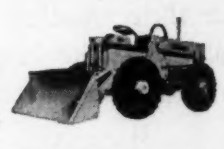
MODEL 204
LIFTING CAPACITY 12,000 LBS.



MODEL 164
LIFTING CAPACITY 10,000 LBS.



MODEL 134
LIFTING CAPACITY 8,000 LBS.



MODEL 114
LIFTING CAPACITY 7,000 LBS.

TROJAN®
TRACTOR SHOVELS
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TROJAN DIVISION • BATAVIA, NEW YORK

For more facts, use Request Card at page 18 and circle No. 256

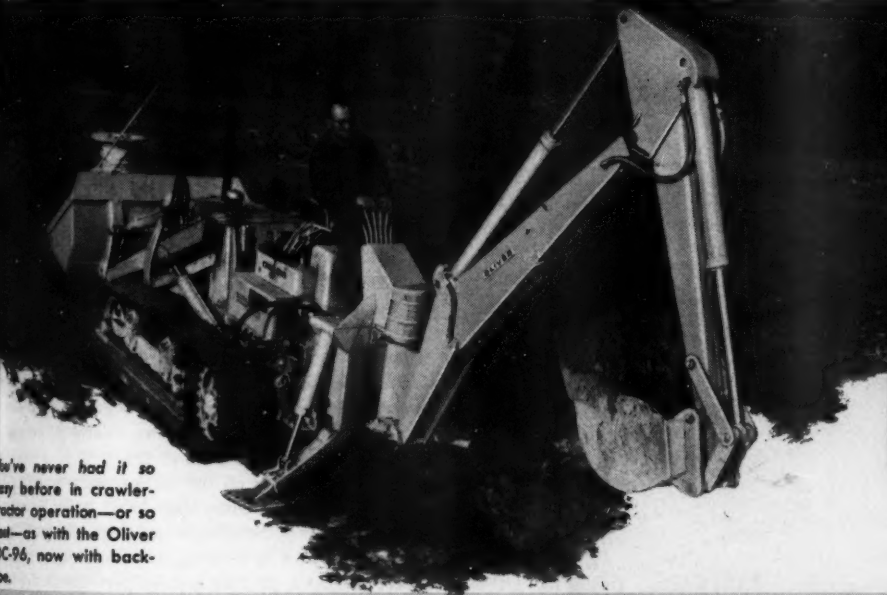
size to get you in
where for more prof-
of any job—the
OC-46, with fast-
backhoe.



MORE DIG PER DOLLAR

Spend your equipment dollars where they'll dig you the most and earn you the best. Each of these Oliver tractors is out front in its class for backhoe performance—bigger money-makers for distinctively good reasons:

OC-46 WITH BACKHOE—The lowest priced digging-dozing-loading machine in its compact class. A proved performer—backed by over 60,000 Olivers its size produced before today's highly developed model. Quick-hitch backhoe—hook on or off in a minute. Digs down to 11'10", reaches out to 12'11", loads up to 9'6". Easy, second-splitting hydraulic controls—cushioned for smoother, precision response. Tool up with an OC-46 loader, the factory-built and matched low-silhouette, high-stability loader, and you have an unequaled high-profit machine ready to earn at more jobs. Now ask about its low price. Set up a demonstration.



you've never had it so
easy before in crawler-
tractor operation—or so
fast—as with the Oliver
OC-96, now with back-
hoe.

WITH THESE RAPID CYCLE OLIVERS

OC-96 WITH BACKHOE—Now you're talking production—really high, wide and handsome trenching or excavating. It's important to remember that the OC-96 is the world's easiest-to-operate crawler. More modern design is why—the leader in its class for advancements. Fully powerized operation with three types of turns through Oliver's exclusive Trans-O-Matic transmission.

Now this rugged speed artist with factory-built loader is offered with matched, close-mounted backhoe. Has quick attach and detach. Full 200° swing of deep 13' digging bucket for wide, either-side casting to 14'7". Load out to 8'6". Long back reach to 18'9" means fewer machine settings, added productivity. Hydraulic outriggers. Buckets to 11-cu.-ft. capacity. Now, size it up and price it out—get the full story on this modestly priced, more modern crawler tractor.

OLIVER CORPORATION, Chicago 6, Illinois

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OLIVER
DEALER



Turn to your dependable Oliver dealer when you need hurry-up service and genuine Oliver spare parts.

For more facts, use Request Card at page 18 and circle No. 257

Scheduled for completion in 1965, the \$320 million Verrazano-Narrows Bridge at the entrance to New York Harbor will be the longest suspension bridge in the world: 6,690 feet, with 4,260 feet between towers. The 12-lane double-deck roadway, 227 feet above mean high water, will link Long Island and Staten Island. Pier foundation work is currently about half completed by a joint venture.



Longest suspension bridge under way as

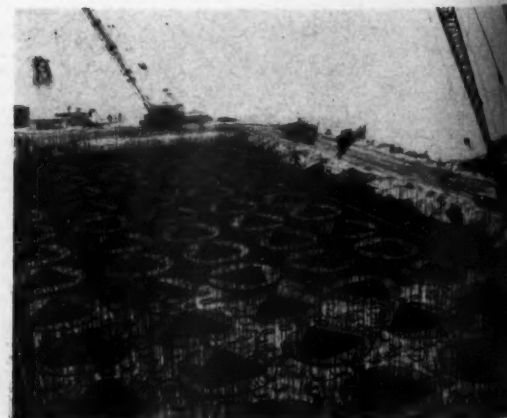
Caisson



Inside the Staten Island cofferdam is this steel cutting edge, 7 feet high and weighing a ton per foot, welded to form a 9-section grid that will encompass the 66 wells for mucking and concrete operations. Six grid sections have 6 wells each; 3 sections have 10 wells each.

Using the sand-island and open-caisson method, a joint venture of J. Rich Steers, Inc., and Frederick Snare Corp., New York City, has pushed past the halfway point on its \$16.5 million contract for the pier foundations for the Verrazano-Narrows Bridge at the entrance to New York Harbor. Pier caissons are 129 feet wide and 229 feet long. The west caisson is about 300 feet off Staten Island, with the bottom founded on sand at elevation minus 105; the east caisson, occupying part of the site of old Fort Lafayette, is 500 feet from the Long Island shore and will have its bottom at minus 197.

Heavy equipment on the job was barge-mounted until the cellular cofferdams were built; timber trestles now provide access to the sites. The working area is provided by rectangular cofferdams of steel sheet-pile cells, 49 feet in diameter. These are of SP6A sheets driven to a minimum penetration of



Two Manitowoc 3900's use Blaw-Knox laydown buckets to place the 94,000 yards required for the Brooklyn caisson. 47,000 yards is going into the Staten Island caisson. Reinforcement for both comes to almost 20,000 tons.



At the Staten Island caisson, a Manitowoc 4500 and two 3900's muck out wells. Cranes also handled reinforcing and concrete. The Steers-Snare joint venture, which built the Queens Anchorage for New York's Throgs Neck Bridge, had equipment readily available for the job. Sand used in the Throgs Neck anchorage cofferdam was barged to the site to bring the elevation of the "islands" to minus 15 feet.

onare sunk for Narrows span

Contractors and Engineers Staff article

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10 feet into original or filled ground. Piles average 50 feet in length. Nearly 2,500 were used for the Staten Island cofferdam. Some 1,800 went into the Brooklyn installation; use of part of the old fort site accounts for the fewer sheets needed here. The gap was closed by 175 pieces of ZP32 sheet piling, which was tied back to a concrete deadman with 2½-inch tie rods on 10-foot centers and stabilized with broken concrete against the outside edge.

A wellpoint system was designed for each cofferdam by Griffin Wellpoint Corp. and was installed under its supervision. High-capacity points—Aqua-hogs—are below the inner walls of each cofferdam. Water that might seep up at the center is intercepted by standard wellpoints at a shallower depth. Standard points were jetted into place. Aqua-hogs were put down with a water-jet hole puncher.

For the stratified soil under the Brooklyn coffer-

dam, Griffin specified a sand filter around each point. These "wicks" were installed with a casing similar to a hole puncher. Material inside a casing was flushed to the surface, the wellpoint placed, and a graded sand filter installed. Three Griffin 1210 wellpoint pumps, each with more than 4,000 gpm capacity, are at each cofferdam; two do the work, one is held as a standby.

A steel cutting edge became an integral part of the caisson when the first concrete lift was placed. The 7-foot-high steel cutting edges weigh a ton per foot and were fabricated in lengths averaging 20 feet that were field-welded to form a 9-section grid. There are 66 dredging wells per caisson, as 6 grid sections encompass 6 wells each and 3 sections have 10 wells each. The bottoms of the wells were formed in 17-foot squares; after the first 13-foot lift was placed, the design changed from square forms to

steel "can" slip forms 17 feet in diameter and 10 feet high.

Precise control of settlement is maintained by a predetermined mucking pattern. An almost constant engineering check is made on the "box" to enable the contractor to correct any overtill, warp, excessive deflection, or other undue movement. After foundation material is leveled by high-pressure jets and a caisson is in position "on the bottom," tremie concrete will be placed in working chambers and the bottom portions of the wells. Wells will then be sealed with a precast-concrete cap and the caisson area covered with a reinforced-concrete distribution slab 4 feet thick. On completion, caissons will be topped with granite-faced reinforced-concrete pedestals for the tower bases, which will be anchored to each of the two legs by 54 bolts, each 3 inches in diameter and 21 feet 9 inches long. THE END



A batch plant on a railroad car float supplies job concrete. An air pump handles some 7,500 barrels of cement per week. The Manitowoc picks up concrete from a distribution hopper.



Two mixers turn out 95 yards hourly with a 2-minute cycle. Concrete goes to a 3-yard skip riding the 70-foot tower and flows by gravity to the 6-yard distribution hopper that supplies the cranes.



A Trojan front-end loader with built-up bucket hauls concrete to a Manitowoc working on the far side of the caisson. Sand, stone, and cement are delivered by barge.



New form planks go down fast

Doing double duty as concrete forms and as insulation and sound cushion, tectum lightweight form boards are being installed for the folded-plate roof of a 2-story section of a new Dallas radio and TV station. The 3-inch form board weighs 6.25 pounds per square foot and takes a loading of 200 pounds per square foot. Substantial savings were achieved by its use and handling.

by BILL ALLEN, field editor

A smart method of installing a new type of building material kept work rolling smooth on a radio and TV station in Dallas, Texas.

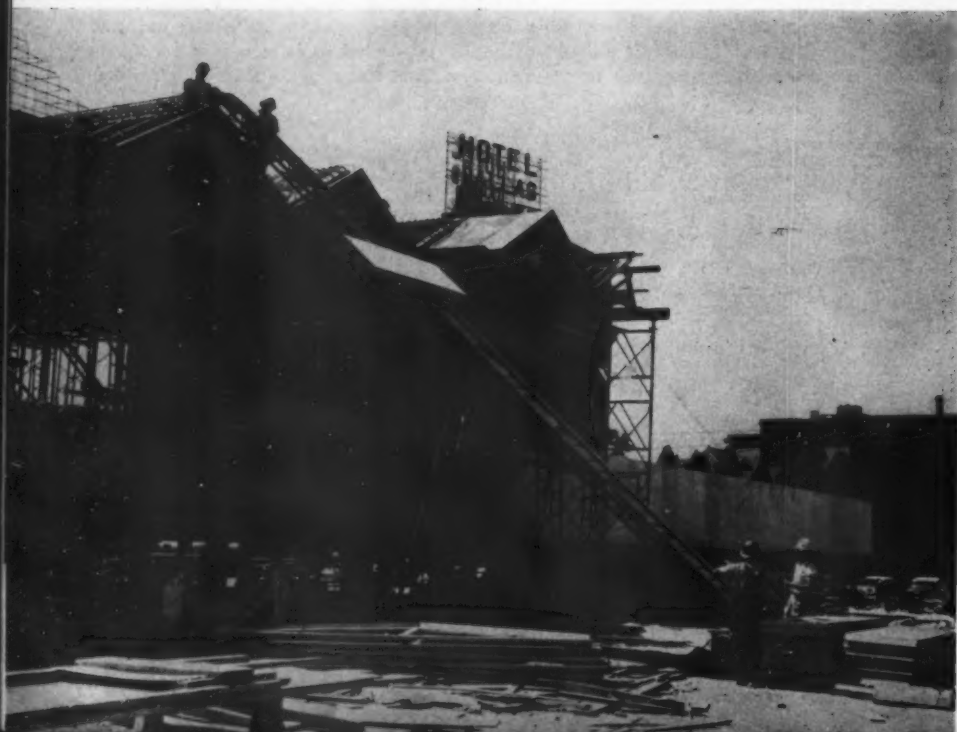
The new material acts as a form for the folded-plate roof. When bonded to the underside of the concrete, the lightweight planking stays in place to serve also as an exposed insulator and sound cushion.

The general contractor, Lee-Emmert, Richardson, Texas, had a cost-cutting method of supporting the planks as well as a speedy way of handling them. Planks were supported by factory-built wood trusses. Because gang nailing plates were used in their construction, substantial economies were realized.

An ingenious conveyor system boosted the trusses and form planks to the roof, where they were quickly set in place. With a pump-placement method being used, the forms were soon covered with concrete.

Sections of the form board are fed by men on the ground to a Sam Mulkey conveyor leading to the roof. At the top, the planks are shifted to a frictionless conveyor and brought to the point where they are needed. Planks have tongue-and-groove joints on the two long sides; no nails are needed to secure them in place.

CONTRACTORS AND ENGINEERS



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One man moves a form board along the frictionless conveyor that is set on a ridge of one of the folded-plate sections. Another workman is handling one of the prefabricated wood trusses that will be used to support the tectum board. While the concrete actually bonds to the surface of the tectum board, the plank also has sheet-metal anchors to secure it to the concrete.

Modern broadcasting facilities

Located on the corner of Young and Records Streets, the WFAA Radio-TV Center was built for A. H. Belo Corp. of Dallas, under a \$1.5 million general contract.

Designed by George L. Dahl, architectural and engineering firm of Dallas, the center will have some of the most modern broadcasting facilities in the country. The building is a reinforced-concrete structure with a 1-story 120 x 72-foot office wing and an adjoining 218 x 170-foot 2-story studio wing. The roof of the studio is of folded-plate construction with spans of 48 feet. Floors are formed with steel pans.

Acoustical work

To meet the demanding acoustical requirements, one of the broadcasting studios is built with an unusual design. This 2-story room is isolated structurally from the rest of the building. No disturbing sounds or vibrations can get through to the studio.

Built like a house within a house, its floor rests on steel "sleeper chairs" with built-in hair felt cushions. These deaden any vibrations that might be transmitted by the ground. Supported by a concrete slab, the chairs carry a floor composed of bulb tees and gypsum board topped with 2½ inches of concrete.

The acoustical ceiling of the studio is in no way attached to the folded-plate roof of the building. The ceiling is supported by its own columns. Within the studio are wave-shaped plastered walls to attain the proper quality of sound. On one of the walls is a variable acoustical screen of perforated aluminum with a fiberglass core. The composition of the screen can be changed to liven or deaden sounds in the room.

With 61,500 feet of occupied floor space, the up-to-date studios are equipped to handle almost any sound that comes along. There are recording studios for orchestras, as well as for duplicating master records and video tape. The studio has facilities for transmitting stereophonic sound. Generally, the station broadcasts AM and FM radio, and television.

A machine did the heavy work of

(Continued on next page)

Announcing **3** NEW STOODY

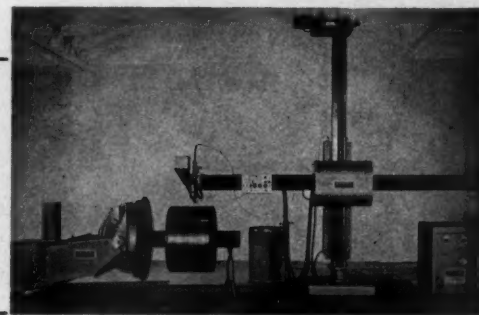
Automatic Welding Systems!



1 STOODY CRUSHERMATIC—A compact, versatile system for automatically rebuilding and hard-facing crusher rolls in position. It enables the welder to work outside the crusher chassis in comfort and clean air. The Crushermatic consists of a motorized carriage riding a track which is suspended over the crusher roll. Wire is supplied to the carriage by any standard semi-automatic wire feeding unit. Uses a 400 amp power supply but 600 amps are preferable. Versatile electronic controls provide proper sequencing for a variety of circumferential and transverse welding patterns. The Crushermatic is portable by one man and is slipped into permanently welded brackets when in use. It deposits up to 20 lbs. per hour—300% to 400% faster than manual welding and 200% faster than hand-held semi-automatic welding.

2 STOODY MODEL U W UNIVERSAL AUTOMATIC WELDER—The Model U W provides a complete welding system capable of cylindrical, conical and straight line welding. The 3000 lb. capacity positioner tilts the workpiece through a 120° angle and is equipped with power elevation and thyatron controlled rotation. All electrical controls are unitized in a portable control panel for maximum operator convenience. Ram type manipulator has a vertical travel from 6" to 8'-6"; Horizontal travel: 10'; Travel speed range: 5 imp to approximately 60 ipm. Manipulator mast rotates through 360°. Power source: DC, constant potential selenium rectifier type. Input: 220-440 V. Output: 500 amps at 40 V 100% duty cycle. 5 point slope control.

3 STOODY MODEL T L DUAL-HEAD TRACK LINK WELDER—Provides dual welding heads with wires supplied from twin Payoffpaks for fast, efficient rebuilding and hard-facing. Extremely rugged construction. Features: Special gear-type wire feed rolls; positive high frequency starters; wider, lower bed for easier accessibility and greater capacity; heavy-duty double worm reduction gear box with DC variable speed travel drive motor. Unitized control panel. Bed length 40'; Bed width 46"; Bed height only 24"; Power: 2-500 amp constant voltage 100% duty cycle 220-440 V power sources.



See live demonstration of these machines —
STOODY Booth #424 — AWS show,
April 18-20, 1961, Coliseum, New York City.



• For full information on all
STOODY AUTOMATIC WELDING SYSTEMS
see your Stoodly dealer (check the Yellow Pages
of your phone book) or write direct.

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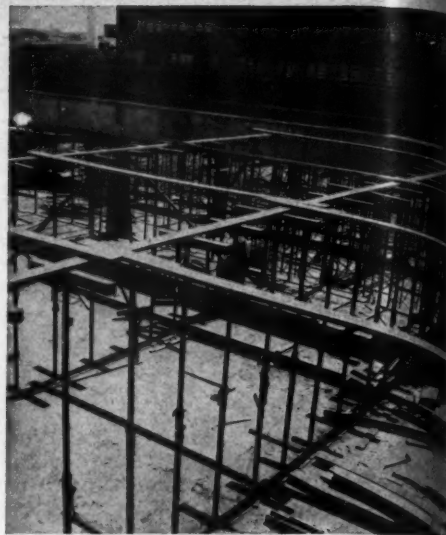
STOODY COMPANY

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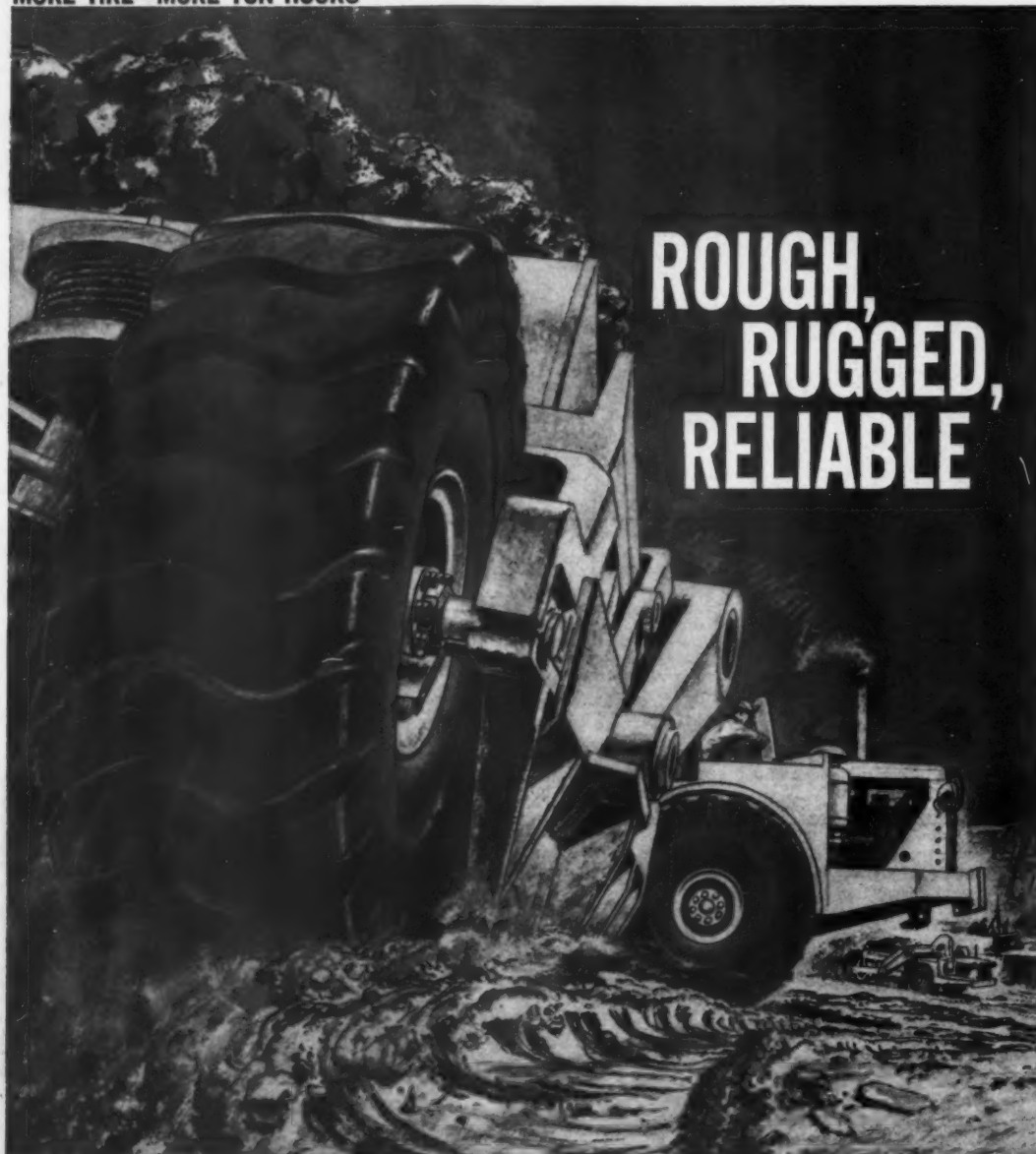


Formwork for the beams of the second floor is supported by Safway tubular scaffolding. Triangular diaphragms, outlined by reinforcing, will rise from the beam to support the folded-plate slab. Diaphragms are placed monolithically with the folded-plate sections.

Waco adjustable shores, resting on the second floor, support the formwork for the folded-plate slab.



MORE TIRE—MORE TON HOURS



**ROUGH,
RUGGED,
RELIABLE**

U.S. ROYAL CON-TRAK-TOR—FULL LUG Built burlier to take it under the roughest conditions • Increased resistance to impact and rock penetration • Wide, full-lug tread gives more ground-gripping contact and flotation—resists side slippage and assures more ton hours of service • More durable carcass—more tires retreadable • Prove-test them on your present equipment, specify them for your new machines • Call your U.S. ROYAL DEALER today for sure.

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US **UNITED STATES RUBBER**
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(Continued from preceding page)

making the wood trusses for the formwork. It stamped the nailing plates into the joints of the triangular trusses. Some plates contained as many as 60 nails. Made out of 2 x 4's and 2 x 6's, each 4-member truss spans 14 feet and has a rise of 4 feet.

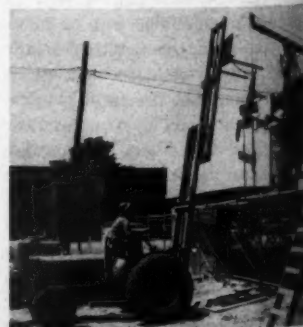
A manufacturer fabricated 400 of the trusses at a cost of about \$8 per truss. On the job, carpenters nailed 1 x 4's to the tops of the sloping members. This provided a wider seat for the form planks. The 400 trusses covered about one-third of the roof area, and they were re-used three times.

On 1-story rises, Waco steel shores supported the trusses. On 2-story rises, Safway tubular scaffolding supported them. The wood trusses were spaced on 30-inch centers to receive the 30-inch-wide form planks.

Planks lightweight but strong

The tectum form planks, distributed by Ward & Capers, Dallas, are a relatively new development in building materials. The plank is made of wood excelsior extruded under heat and pressure and bonded together with a thermal-setting cement.

The tectum plank is lightweight but has surprising strength. The 3-inch plank used on this job weighs only 6.25 pounds per square foot, yet it can take a loading of 200 pounds per square foot. The treated undersurface bonds to the concrete, allowing the plank to become a part of the finished ceiling. For reasons of



A fork-lift on a Massey-Ferguson Work Bull 202 brings limestone to a roof-mounted boom during the facing of the 1-story section of the building.

CONTRACTORS AND ENGINEERS

safety, steel clips protrude from the joints between the planks to anchor in the concrete. As part of the completed ceiling, the planks have good sound-absorbing and insulating characteristics.

The versatile material was also used to face certain studio walls. It was hung in 30 x 30-inch squares from resilient fasteners to a brick partition wall. An air gap separated the brick from the tectum.

Fast plank handling

An ingenious conveyor system carried the form planks and trusses to the roof. Materials placed on a Sam Mulkey inclined conveyor at ground level were picked off at roof level and placed on a frictionless, roller-type conveyor mounted on the ridge of one of the folded-plate sections. The planks were then pushed down the roller conveyor to the point where they were set in place. No nailing was necessary. Tongue-and-groove joints insured protection from leakage of concrete.

After a single layer of reinforcing steel was set, 3,000-pound concrete was placed on the forms to a thickness of 4 inches. The pea-gravel mix was pumped to the roof through a 3-inch line. Each placement completed 2 1/3 plates for the width of the building. The final step in the roof construction was the laying of a 4-ply built-up cover.

Personnel

Pete King was superintendent for the general contractor. John R. Pierce was the architect's representative on the job, and Chris Irby was the owner's representative.

THE END

Credit overdue

The Editor,
CONTRACTORS AND ENGINEERS

It was very interesting to read your article in the March issue, "New Forming Method for Box-Girder Bridges."

We believe a very thorough job of study and research, along with some good photography and art work, were correlated to produce this article.

Over the years, your magazine has provided descriptive information to your many readers covering jobs and products. In the above article, we note that credit was given to the Gar-Bro concrete bucket, the Smith mixers, Mack trucks, Universal coil ties, adjustable Universal screed chairs, to the Koehring Co. for its crane, and even to a Japanese firm. We also note that Tobin Construction Co.'s engineers were given credit for a rail-riding vibrating screed which they designed. *This is the type of credit and recognition for which your magazine is noted.*

However, we were greatly disappointed and chagrined when you pictured and described the special screw jack used, yet ignored to mention our firm's name, which was labeled on each of these jacks. The screw jack you picture and describe is our Type "M" extra-heavy bridge screw jack.



7,800 FEET—660 SEPARATE CUTS A DAY!

THIS CLEVELAND J TRENCHER digs 30 house footings per day for Contractor J. C. Bowles in Dairy City, California. Each house requires 260 lineal feet of trench—22 individual cuts—which means: 660 machine moves, 660 boom hoistings, 7,800 feet of digging every day. Such performance shows these Cleveland J features pay off:

- 100% control of all operations at the operator's fingertips
- Full visibility for the operator
- Fast, full-range positive boom hoist
- Independent conveyor speeds to 1,000 feet per minute
- Big 16" x 3" hydraulic steering brakes
- 100% anti-friction-bearing track components
- 1,000-hour track lubrication
- Bushed, 1½" hardened track pins
- Dual track drive and support for maximum stability
- All speeds available in either direction

"No other machine does this work so fast and so cheap and gives you such a clean finished job," says Bowles. He should know. His crews have dug footings for more than 100,000 houses in the last 10 years.



CLEVELAND TRENCHER

THE CLEVELAND TRENCHER CO., 20100 ST. CLAIR AVE., CLEVELAND 17, OHIO

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We feel that it was not only pertinent but highly essential to the success of the "New Forming Method."

Inasmuch as we designed and manufactured this screw jack for the J. A. Tobin Co., we feel that we are certainly entitled to credit and due recognition in your article.

We believe upon another inspection of your article you will find that this was the only product described for which the manufacturer did not receive credit.

W. A. Puckett, sales manager,
Concrete Forms Corp.
Chattanooga 10, Tenn.

Ed—We regret that Concrete Forms Corp. screw jack was the only product

we failed to identify on this bridge job. Frankly, we couldn't find the name on it.

HRB issues proceedings of 39th annual meeting

■ The Highway Research Board has published in book form the proceedings of its 39th annual meeting held in January, 1960.

The 728-page volume includes papers in the following general areas: economics, finance, and administration; design; materials and construction; maintenance; traffic and operations; and soils. Also included are listings of papers and reports in other HRB publications, as well as

HRB officers, personnel of executive committee, member organizations, departments, other committees. The book concludes with a listing of HRB Awards since 1940; minutes of the 1959 annual business meeting; and an author index.

"Proceedings" (Vol. 39) is available from the Highway Research Board, 2101 Constitution Ave. N. W., Washington, D. C., at \$12 per copy.

Clinton Engines names

■ Clinton Engines Corp., Maquoketa, Iowa, has appointed Stanley J. Maslerak production manager of its Maquoketa plant. He was formerly assistant to the chief industrial engineer.

Labor Review

Building trades, national constructors group adopt strike-prevention plan

The National Constructors Association and the AFL-CIO Building and Construction Trades Department have adopted a strike-prevention plan intended to cut costs and provide machinery for the peaceful settlement of labor disputes on big industrial projects.

H. E. Lore, president of NCA and manager of the engineering and construction department of the Dravo Corp., says the plan should convince "major American industries that their expansion projects, if designed

and built by NCA member companies, would be completed on time and within assured cost estimates."

C. J. Haggerty, president of the Building and Construction Trades Department, says the plan "by providing added assurance against strikes and lockouts should be a stabilizing element in the industry and result in more jobs for members of building-trades unions."

Key provision of the National Disputes Adjustment Plan is a section stating: "There shall be no strike, picketing, or work stoppage by an affiliate of the department and no lockout by any contractor member of

the association until the grievance procedures of this plan have been exhausted."

Chamber moves to rally public opinion against situs picketing bills

The Chamber of Commerce of the United States has stepped up its campaign against legislation to sanction common-situs picketing in the construction industry with a new pamphlet intended to arouse public opinion against bills introduced recently by Sen. McNamara (D., Mich.) and Rep. Thompson (D., N. J.)

The pamphlet warns that enactment of the legislation would result eventually in the wiping out of all secondary boycott protections of the law and would restore the "dreaded

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closed shop, so that no person could work without paying dues to a union boss."

The Chamber also predicts that the legislation would result in (1) higher home-building and construction costs, (2) more featherbedding, (3) widespread product boycotts, and (4) crippling strikes that would harm the country's defense and missile programs.

Los Angeles plasterers forego wage increase; carpenters ask 4-day week

Two southern California crafts appear to have opposing ideas on how to combat unemployment among their members—one having decided to forego a scheduled wage increase, while the other reveals that it will reopen its agreement with the demand for a 4-day work week with no reduction in weekly pay.

The first approach is taken by Plasterers Local 2, Los Angeles, which has voted to give up a 12½-cent increase due this year under its agreement with the Contracting Plasterers Association. "We feel our present wages are sufficient," a local official is quoted as saying.

On the opposite side of the picture, the Associated General Contractors of Southern California notes that five crafts with which it bargains are due for increases ranging from 18 to 22½ cents an hour this year, and the carpenters have stated their intention to seek the 4-day work week.

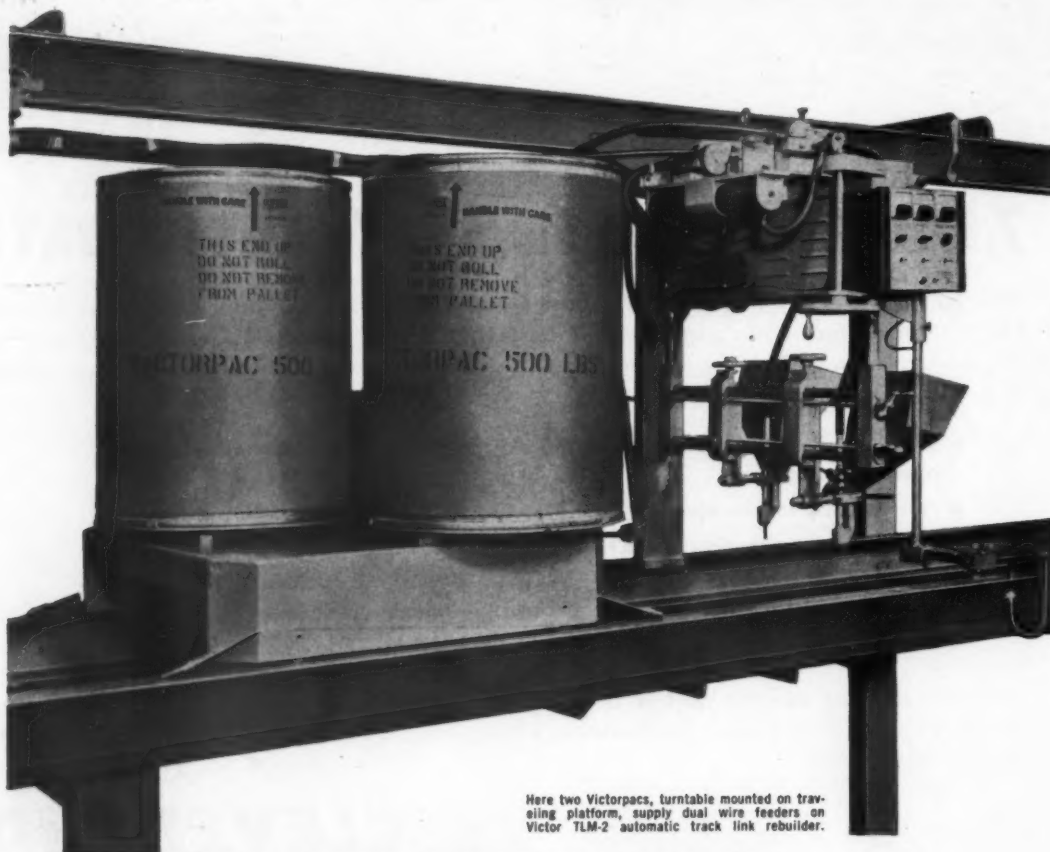
New Jersey contractors ask Presidential panel to review union demands

The Building Contractors Association of New Jersey has a project for President Kennedy's recently appointed Advisory Committee on Labor-Management Policy. It suggests that the panel immediately review "preposterous and outrageous wage increase demands of from 32 cents to \$1 per hour" made by four building-trades unions in northern New Jersey.

According to Paul J. Brienza, managing director of the contractor group, employers have been served notice that bricklayers in Passaic County want a 50-cent increase in their present \$4.72 rate, that laborers want 45 cents added to their present rate of \$3.50, and that carpenters want 32 cents on top of their present \$4.43 rate. (Rates quoted include welfare and pension contributions.)

Brienza requested review of these proposals by the new committee. He called it "ironic that such demands have been presented from Passaic County, classified by the government as a depressed area with great unemployment, and where such added labor costs could put some contractors out of business."

The New Jersey unions already have been warned by the association that they are pricing themselves and the state—out of the construction market.



Here two Victorpacs, turntable mounted on traveling platform, supply dual wire feeders on Victor TLM-2 automatic track link rebuilder.

NEW VICTORPAC

Reduces track rebuilding costs 2 ways

Saves you 3c per pound and up to 2 hours changing coils

Now you can get Victor high quality, uniformity guaranteed VA4X, VA5X, and VA7X continuous-coil hardfacing wire in 500-lb. Victorpac containers. You pay 3¢ less per pound than for standard 100-lb. layer wound rolls. You also eliminate four coil changes and gain up to 2 hours productive time per 500-lb. Victorpac. Also available, 200-lb. Victorpac at savings of 2¢ per lb.

Works with all automatic rebuilders

Simple, low-cost turntable enables you to use Victorpac hardfacing wire with track link rebuilders, roller and idler rebuilders, grouser bar welders, or any other automatic welder. Victorpacs are easy to handle and store, keep wire clean and dry.

Why not take the easy Victorpac way to increased productivity and lower wire costs? Order from your Victor dealer now. He's your one-stop source for hardfacing wire, rebuilding equipment, welding apparatus.



Profitable dealerships open; inquire now!

VICTOR EQUIPMENT COMPANY

Alloy Rod & Metal Division
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Wakita, Oklahoma

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H-78

Free world sets new road record

Perennial records in highway spending are a world-wide phenomenon. The free world set its 13th record in a row in 1960 with total road expenditures of \$19.3 billion. This was an increase of 3.75 per cent over the 1959 level of \$18.6 billion.

World-wide road-expenditure figures are compiled by the International Road Federation from reports submitted by 161 countries and territories. The figures include spending for road construction, maintenance, and administration.

U. S. expenditures totaling \$11.18 billion are, of course, far and away the highest for any individual nation.

Canada has the world's second biggest road-building market, followed closely by West Germany. These countries spent over \$1.35 billion and \$1.20 billion, respectively in 1960.

Rounding out the top five road expenditures in the free world were Japan's at \$570 million and Great Britain's at nearly \$519 million.

The remaining nations reporting expenditures of more than \$100 million were France, Australia, Italy, Brazil, Sweden, India, Switzerland, Poland, Austria, Finland, and Venezuela. Their spending levels ranged from \$451 million for France to \$106 million for Venezuela.

Asia led the regions of the world with a 26.3 per cent increase over its 1959 level. South America—led by Brazil's \$286 million expenditure—was a close second, with a 24.4 per cent gain in 1960.

Oceania's spending rose 9.4 per cent. Africa's—led by the Union of South Africa's \$98 million expenditure—rose 7.6 per cent. Europe's increased 6.2 per cent, and North and Central America's 2.6 per cent.

When road spending is calculated on a per-vehicle basis, the highest expenditures are those of underdeveloped nations or areas. The top 15 based on this criterion are scattered throughout the world and include four in Europe, two in the Americas, two in Asia, and four in newly emerging Africa.

1960 Per-vehicle Highway Expenditure

TOP FIFTEEN COUNTRIES, AREAS

Mauritania	\$1,378
Iraq	1,023
Yugoslavia	1,000
Greenland	978
Turkey	936
Nigeria	828
Honduras	817
Poland	740
Greece	656
Dominica	645
Ivory Coast	643
Cape Verde Isls.	632
Mali	615
Niger	602
Liberia	582

New paved roads almost always mean an immediate drop in crop transport costs and are, therefore, a direct stimulant to the economies of these regions.

40 TOP FREE-WORLD COUNTRIES IN ROAD SPENDING

Country	1960 Expenditures (in million U.S. \$)	Country	1960 Expenditures (in million U.S. \$)	Country	1960 Expenditures (in million U.S. \$)
1. United States	\$11,178.0	14. Austria	111.7	28. Netherlands	57.4
2. Canada	1,346.0	15. Finland	111.6	29. Indonesia	53.0
3. West Germany	1,202.0	16. Venezuela	106.0	30. Iraq	45.0
4. Japan	570.0	17. Union of South Africa	98.0	31. Greece	44.2
5. Great Britain	518.9	18. Norway	96.2	32. Belgium	40.0
6. France	451.0	19. Turkey	88.5	33. Colombia	39.5
7. Australia	338.9	20. New Zealand	83.2	34. Chile	35.1
8. Italy	296.0	21. Argentina	75.0	35. Nigeria	35.0
9. Brazil	286.5	22. Denmark	65.6	36. Spain	33.5
10. Sweden	215.1	23. Yugoslavia	65.0	37. Puerto Rico	30.0
11. India	191.0	24. Cuba	61.7	38. Pakistan	30.0
12. Switzerland	178.6	25. Algeria	60.0	39. Ireland	28.4
13. Poland	162.9	26. Mexico	60.0	40. Morocco	22.0
		27. Philippines	59.0		

Source: International Road Federation

"I LIKE THE WAY WILLIAMS BUCKETS HANDLE" says CLYDE QUIGGLE, CLEVELAND CLAMSHELL OPERATOR



Henry Miesz Excavating Company of Cleveland, Ohio, for whom Clyde works, likes them even better.

"Williams Buckets are efficient and tough. They need minimum maintenance. We get our trucks filled with fewer grabs, thus keeping them rolling steadily. All this adds up to better profits for us", reports William Miesz, vice president.

Every Williams Bucket is of rugged construction, welded throughout using quality alloy steels. Williams has a complete line of clamshell and dragline buckets for every application.

Write us for name and address of your nearest Williams dealer or send for our Contractors bucket catalog.

CLAMSHELL AND DRAGLINE BUCKETS • ROCK GRABS • WOOD GRABS • SPECIALLY DESIGNED BUCKETS OF ALL TYPES.

For more facts, use Request Card at page 18 and circle No. 263



THE WILLMAN ENGINEERING COMPANY
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Interstate 5 near Eugene, Ore., is being paved with reinforced concrete in a single pass and at a rate of more than 550 feet per hour by a spread using a new Koehring 34-E Tribatch and some special rigs and attachments in the paving train. A single lane has been completed down one side at this point, and the train is returning on the opposite side.

Reinforced paving is laid in single pass; unique machine used to

Vibrate wire mesh into fresh concrete

Other contractor-built rigs place dowel bars, cut joints, and apply brushed finish

Virtually automatic, the Koehring Tribatch turns out a batch about every 20 seconds. The dump man uses a remote control on a bracket attached to the skip's guard arms to dump the skip. Colored lights on the paver's control panel show the operator when the skip is ready to dump and when a batch is ready to discharge.

by RALPH MONSON, field editor

A shop-built machine that vibrates welded-wire-fabric reinforcing down into a freshly placed concrete paving slab makes it possible to place the full depth of concrete in a single pass. This not only speeds the paving operation but also produces better results than the conventional method of placing the concrete in two lifts.

This is but one of a number of special machines or attachments developed by Roy L. Houck Sons Corp., Salem, Ore., to speed its concrete paving spread and improve the finished product. Some of the others include a dowel-setting machine, a joint-cutting attachment, and a power-brush finisher.

The spread, with these special rigs teamed with Houck's new Koehring 34-E Tribatch paver, has been putting down the 12-foot lanes of 8-inch reinforced concrete at a rate of more than 550 feet per hour.

Houck completed two paving jobs totaling more than 10 miles of 4-lane highway on Interstate 5 just north of Eugene, Ore., after introducing the special machines on a 7-mile section of the same route in 1959.

Use triple-batch paver

The spread included the first Koehring Tribatch paver in the Pacific Northwest (the second on the West Coast). While the big paver had a few bugs, which were ironed out as the work progressed, it laid down more than two batches of concrete per minute under average working conditions. During this shakedown period, the contractor kept a second double-drum paver handy on the job to, as Roy Houck put it, "scare hell out of that big machine and keep the warranty serviceman on his toes." The second paver was used only once when the big machine was down with



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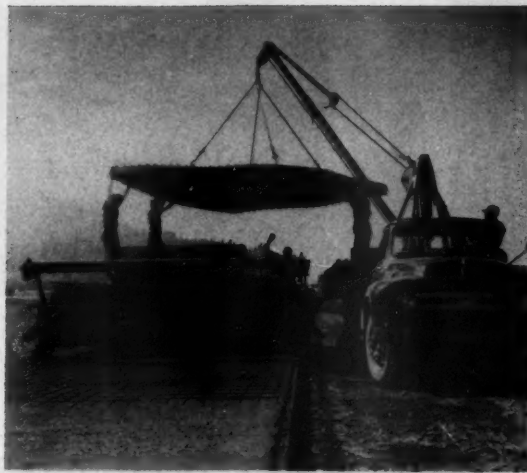
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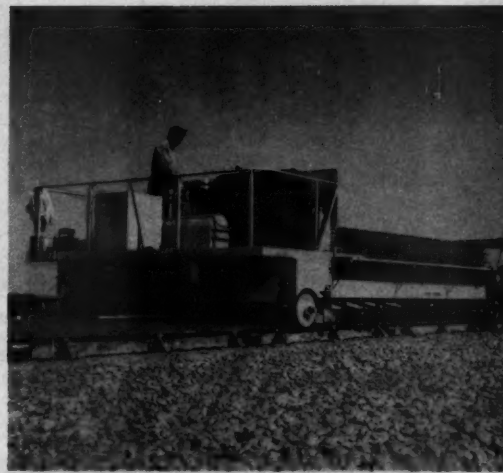
APRIL



The Jaeger finisher that comes next has a contract-patented dowel-setting rig attached to push dowels into the concrete. Fingers hold dowels at correct spacing; the frame is lowered hydraulically to push dowels to proper depth.



The 11.5 x 16-foot panels of welded-wire reinforcing are unloaded from the supply truck by a Pitman Hydra-Lift on a Ford truck. Mats are being placed on the special machine from which they will be set. The mats, supplied by Colorado Fuel & Iron Corp., are 6 x 12, 1:4 wire-fabric reinforcing.



The rig runs over the wire reinforcing it has placed, vibrating it down to its required depth in the slab with a steel frame fitted with Jackson electric vibrators. Ends of the mats overlap 1 foot for bond.

a broken part that had to be replaced from the factory.

The Tribatch paver is a nearly automatic machine on which the operator sits at a console of flashing lights and push buttons. If everything is working to perfection, the skip will dump a batch of the raw materials into the first drum every 20 seconds, and the bucket will deliver a batch of the mix with the same regularity. On a day-long basis, the batch time runs closer to 30 seconds.

One of the many advantages of the new machine is the remote control of the skip by the dump man. The skip control is mounted on a bracket attached to the guard arms. As soon as a batch has been discharged from the truck, the dump man pushes a button, and the batch is on its way to the drum. There is no need for the paver operator to look around to see if the truck is out of the way. Colored lights indicate to the operator when the skip is about to dump and when the batch is ready to discharge to the bucket.

As the paver deposits the concrete, a Blaw-Knox spreader distributes it across the grade to the full depth of the slab. A pan vibrator on the spreader starts consolidating the mix.

The next machine in the train is a Jaeger double-screed finisher with Houck's patented dowel-setting attachment mounted on the rear. The dowel setter is essentially a frame carrying a series of spring-loaded steel fingers that grasp the dowels and hold them in exact spacing and alignment. At the joint location, hydraulic cylinders force the frame, including the fingers and dowels, down into the concrete to the desired depth. The operator then disengages and retracts the fingers, leaving the dowels in their correct location. The 1 x 18-inch plain dowels are heavily greased before being placed in the

fingers to keep them from bonding to the concrete.

During the initial use of a prototype of this machine in 1959, the contractor and the Oregon State Highway Commission made extensive tests to check the final location and alignment of the bars, as well as the condition of the surrounding concrete. The bars were found to be more accurately positioned than when chairs were used, and there was no weakening of the concrete in the area.

One workman loads the bars into the fingers of the machine as the finisher advances the 61.5 feet from one joint to the next. Use of the machine has eliminated two workers who formerly set the dowels in the chairs ahead of the paver.

Vibrate reinforcing

The key to Houck's one-pass operation is the machine that sets the reinforcing. This machine, which rides the forms behind the dowel-setting finisher, has a rack at the forward end to carry a supply of the 11.5 x 16-foot mats of 6 x 12, 1:4 welded-wire-fabric reinforcing. Bundles of these mats, supplied by Colorado Fuel & Iron Corp., are delivered from stockpile on a flat-bed truck and transferred to the machine by a truck-mounted Pitman Hydra-Lift crane.

Two workmen unload a mat over a roller at the front of the machine and drop it in place on top of the fresh concrete. The ends of the bars of the first mat fit between the joint dowels. Succeeding mats overlap 1 foot for bond.

The machine then advances over half of the newly placed mat and half of the one previously placed. The operator then lowers a gridlike frame made of steel angles with 3-

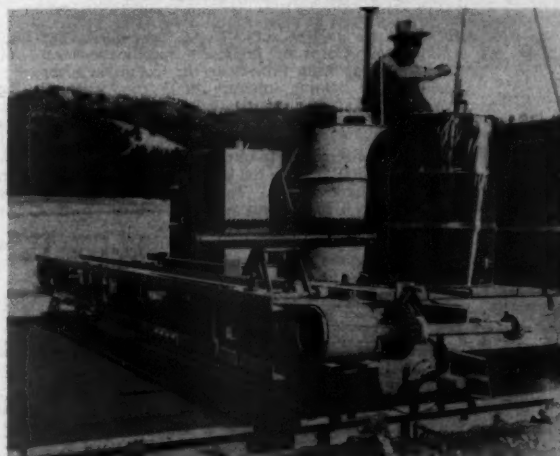
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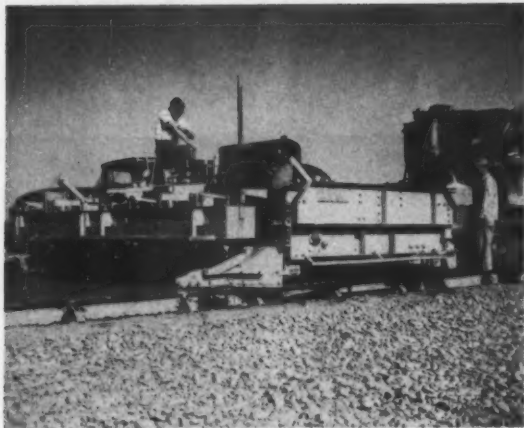
Thin bituminous joint strips are placed by an attachment on the rear of the Rex finisher. After a plate is vibrated into the concrete, a strip is installed and concrete tamped over the joint.



A Johnson float-finisher makes several passes, going over joints, which crack open on a straight line following shrinkage and temperature changes. On the final pass, the rig uses a burlap drag.



A brooming attachment on an endless belt at the front of the curing spray rig operates as the rig moves ahead. This produces a broom mark that does not run straight across the slab.



The first rig after the paver is a Blaw-Knox spreader, which spreads the concrete between the forms and compacts it with a pan vibrator. Following the rig is the double-screed finisher with the patented dowel-setting attachment.



Concrete has a rough look after the mesh has been vibrated, but this Rex finisher removes all the marks. Testing has shown that concrete is not damaged in this operation and that the mat is in the right place.



The Tribatch operator knows, by control-panel lights, what goes on between skip and bucket. He has push-button control of the automatic devices that handle the work sequence.

(Continued from preceding page)



John Day Dam, Columbia River—Contractor: Montague-Halverson-McLaughlin & Assoc.

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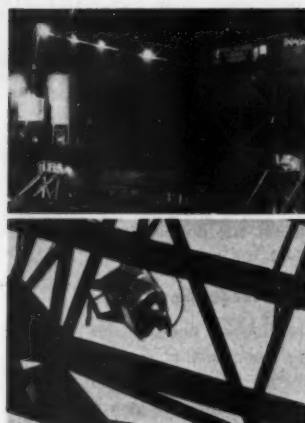
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Counter-balanced Wide-Lites on crane boom keep light aimed at work area.

at the work area as the crane operates.

Why does Mr. Rafferty believe Wide-Lites are best for big construction jobs? Durability is one reason. Since the job began in January, 1960, he has used Wide-Lites on skid-mounted towers which are towed by tractors across the rough dam site terrain—and not a single lamp has broken! And, of course, since one Wide-Lite does the work of two or more incandescent floodlights, fewer lights are needed.

Find out all the reasons why Wide-Lites are best for your lighting problem—just send the coupon. No obligation, of course.

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inch legs protruding downward. Hydraulic cylinders force down the frame with Jackson electric vibrators. The frame forces the mats of fabric reinforcing down to the desired depth, where an adjustable stop keeps them from going deeper.

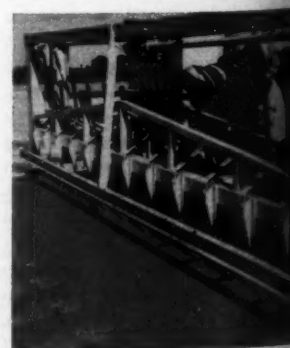
By straddling the lap, the machine puts half of each mat down in one operation. This leaves the forward end of the last mat on the surface so that workmen can place the next mat with the proper lap.

The dowel setter and the machine placing the mats leave the surface of the concrete marked in a rough grid pattern. However, the Rex double-screed finisher that follows leaves the surface smooth and undisturbed. Extensive testing by the Oregon highway laboratories has shown that the reinforcing is in the proper position and the concrete is undamaged. In fact, there is some evidence that the additional vibration actually improved the concrete.

Placing bituminous joints

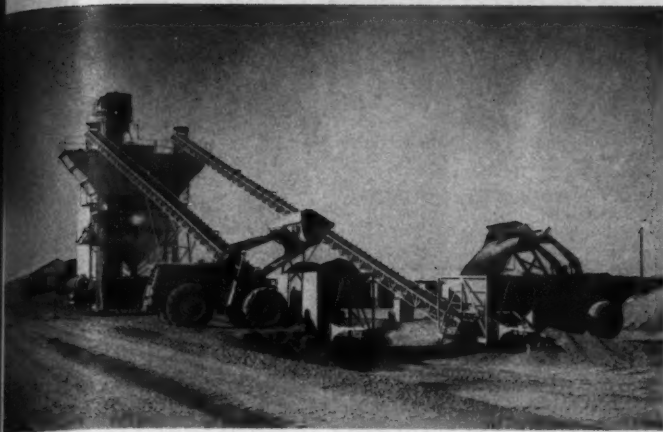
The Rex finisher also has a House-built attachment on the rear. This one cuts the contraction joints. As the finisher reaches the joint location, hydraulic cylinders force a long plate down into the concrete. Jackson vibrators attached to the plate force the coarse aggregate out of the way and provide a space for the joint strip.

After the plate is withdrawn, two workmen insert the 1/8 x 2-inch pre-molded bituminous-expansion-joint



The dowel setter is one of the special attachments developed by the contractor for the paving train. The workman loads the fingers with 1-inch round, 18-inch-long dowels.

CONTRACTORS AND ENGINEERS



Two Michigan 175A tractor shovels load sand and rock into hoppers feeding conveyors that lead to the bins of the C. S. Johnson semiautomatic batch plant. Each of the 19 batch trucks on the job was able to haul three 37.4-cubic-foot batches per trip to the paver.



Cement is unloaded to the two cement silos of the Johnson plant while a batch truck is being loaded. At far left, one of the Michigans is feeding a conveyor. The cement, which was delivered by rail to Coburg, was picked up by truck transports and hauled to the plant.

State Highway Engineers saw it happen!

Two men with one hydraulic sprayer mulched two acres of embankment in 24 minutes flat!

*They were testing the remarkable new erosion control agent: **SOIL-SET.***

strips. They work the strips down to 1/4 inch below the finished surface and then work the concrete over the joint with a wood float. The final finishing operation passes right over these joint strips without touching them, but when shrinkage occurs, the joints open in a neat straight line.

These joints have proved much more satisfactory than sawed joints in this area, where the aggregates are hard to saw and where the large temperature differential between hot afternoons and cold nights frequently caused premature cracking during or prior to the sawing.

A Johnson float finisher follows the jointer to do the final floating of the slab. Almost no hand finishing is required.

Power-broom finisher

To apply the broomed finish required by the Oregon specifications, Houck built a power-brooming attachment to fit on the front of the curing spray machine. An old belt-finishing unit was raised up off the slab, and two wire brooms were attached to it. As the spray machine moves ahead, the belt drags the brooms across the slab giving the desired finish.

At the same time, the spray machine is applying a coating of Norris white-pigmented curing compound to the surface of the finished slab.

All of Houck's machines are built to the 12-foot width for placing a single lane at a time. On this job,

(Continued on next page)

Right on a major expressway, a new concept in mulching proved itself. Where it would ordinarily take a crew of 5 men working 8 hours to blow straw mulch over 6 acres, SOIL-SET demonstrated it could do the job evenly and effectively in 1/5 the time—and with less than half the labor.

Three full years of testing

This Eastern test was just one of hundreds. Before Alco released new SOIL-SET for general use, it embarked on a comprehensive on-the-job proving program . . . working with over 20 state highway departments, parks, commercial farms, golf courses, country clubs, industrial and residential developments. SOIL-SET performed with specific plusses not to be found in other mulches.

SOIL-SET is always "ready to go"

If you've had to sweat out delivery of truckloads of straw, while you kept crews waiting idle, you'll appreciate the news that SOIL-SET can be stored on the site for any length of time . . . ready for the instant you need it. Because it's a

concentrate (1 gallon properly diluted with water covers up to 500 square feet) a few drums of material are all you will need for most jobs. Rain won't spoil it. It won't deteriorate with age. When your men are ready for the mulching, just add water and SOIL-SET is ready to spray.

SOIL-SET is a "clean" application

Unlike the problems you encounter in blowing straw, SOIL-SET sprays on easily, exactly where you want it, without clogging machinery. This is a strong contributory factor to its speed of application. In addition it is available, not only in green or black, but in a clear mix that won't stain paving or metal work.

SOIL-SET is organically inert

Where straw will, as it deteriorates, rob carefully prepared soil of nitrogen, SOIL-SET will not. On the contrary, an application of SOIL-SET will "hold" the chemicals and fertilizers you may have added with seeding. Furthermore, SOIL-SET adds no unwanted cereal and weed seeds. Only the seed you actually plant will germinate.

SOIL-SET is non-flammable

Don't worry about a careless match after you apply SOIL-SET. Where straw mulches can present so great a fire hazard that many communities forbid their use, SOIL-SET is perfectly safe. This means you can now protect seeding in any area.

Just what is SOIL-SET

It's an entirely new concept of mulch—an elastomeric emulsion that forms, after spraying, a close-fitting porous ground cover that lasts about 60 days. It can be applied with any standard sprayer, and at temperatures as low as 45°F.

SOIL-SET is specifically designed for erosion problems

Wherever wash-aways are a problem, SOIL-SET is the answer. On grades, embankments, slopes, hills, run-off areas and depressions, SOIL-SET will hold soil, seed and chemical fertilizers in place—even against high winds and heavy rains. As a side benefit, if a cool spell occurs after spraying, SOIL-SET will also accelerate seed germination because it retains the sun's heat.

Don't guess about SOIL-SET; read the full report yourself

MAIL this coupon TODAY:

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Please send me additional information on SOIL-SET compiled from lab reports, agronomy reports, case histories.

Name & Company _____

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For more facts, use coupon or Request Card at page 18 and circle No. 265

G



Depressions in the concrete show where dowels were set by the shop-built placing attachment on the double-screed finisher. Bars of the reinforcing mat fit between the dowels; they do not overlap the joint.



A 6-inch electric turbine-type pump mounted on a platform beside this bridge over the McKenzie River pumps water to the 2,000-gallon tank on the Ford truck. To pick up his load, the driver merely spots the truck under the standpipe, climbs up, lowers the flexible spout into the truck opening, and pushes the starter switch for the pump motor.



Cement for the job is unloaded from rail cars at a siding by a screw-type cement unloader. The cement is being loaded into a Schetky cement trailer that is pulled by a Ford truck.

Want better scraper versatility?



the **TS-14** all-wheel drive "Euc" is the answer!

Whatever your scraper requirements may be, the Euclid TS-14 can cut earthmoving costs on a wide range of work—from small yardage jobs to the biggest projects.

All-wheel drive and 14 yd. struck capacity puts this "Euc" way ahead of other medium size scrapers in performance and overall work-ability. With a total of 296 h.p. and separate Torqmatic Drive for each axle, the TS-14 picks up heaped loads in a hurry... gets out of the borrow pit or cut fast... and really rolls on the haul road. It loads itself in practically any material... and with a push tractor it's a big producer on the toughest scraper job.

Here's a one-man earthmover that reduces your equipment investment... works more days per year... handles a wider range of work because it isn't stalled by steep grades or adverse conditions. Ask your dealer for complete information... better yet, have him show you a TS-14 in operation.

EUCLID Division of General Motors, Cleveland 17, Ohio
Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland



FOR MOVING EARTH, ROCK, COAL AND ORE

(Continued from preceding page)

the batch plant was located at one end of the project. The southbound outer lane was placed first. Then the train moved across and returned the full length of the job on the northbound outer lane. By the time they were ready to start the third lane, the first one was strong enough to carry the equipment, and the third and fourth lanes were placed with the equipment operating on the concrete slab.

Batch plant

The concrete for the job was batched from a C. S. Johnson semi-automatic batch plant. The sand and two sizes of rock were picked up from previously built stockpiles by two Michigan 175A tractor shovels. The Michigans dumped into bins feeding the two inclined conveyors, which charged the overhead bins of the plant.

Cement was received at nearby Coburg, where a screw-type unloader transferred it from the rail cars to truck transports that hauled out to the batch plant.

Houck had 19 Ford batch trucks on the job and kept most of them busy on the long hauls. Each truck carries three of the 37.4-cubic-foot batches. The end batch is "tripped" with the ordinary tail gate, but the other two batch compartments are fitted with hydraulic gate locks designed and installed in the Houck shops.

These catches operate with hydraulic cylinders powered from the hydraulic pump, which operates the dump-body hoist. A single lever mounted near the rear of the box operates both gates. The dump man moves the lever in one direction to operate the valve that opens one gate, and in the opposite direction to open the other gate.

For this fast-moving spread, the contractor used about 5 miles of single 8-inch Blaw-Knox steel forms. The forms were set to grade and tamped with a pair of Cleveland foot tampers. A thin course of minus 3/4-inch sand cushion was then spread between the forms by a dump truck with a tail-gate spreader. This material was cut to grade with a Ras

For more facts, use Request Card at page 18 and circle No. 266

CONTRACTORS AND ENGINEERS

grader and then compacted with Bros 9-wheel self-propelled roller and a Buffalo-Springfield 10 to 12-ton 3-wheel roller.

Personnel

Houck's concrete paving spread operated under the personal supervision of Roy L. Houck, founder of the company. Other supervisory personnel on the job included general superintendent Harold Widner, concrete-form foreman Bert Davis, paving foreman Allison Klug, plant foreman Kenneth Keyte, truck foreman Jack Duncan, finishing foreman Louis Hall, shop foreman Ralph Atwood, and timekeeper Dick Tuttle.

The resident engineer for the Oregon State Highway Commission was Harley Mayfield, the concrete inspector was Tom Schott, and the plant inspector was Stan Yirak. The construction engineer for the Oregon commission is Tom Edwards. The state highway engineer is W. C. Williams.

THE END

New filter/separators under test by Corps

The U. S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va., is developing a family of standard filter/separators in 50, 300, and 600-gpm sizes for decontaminating the hydrocarbon fuels used in military aircraft and vehicles.

Although commercially available filter/separators can be modified to meet military requirements, they vary considerably in configuration and dimensional details. This prevents the interchange of solids and water-removal media of any one manufacturer within the vessel of another manufacturer, creating an undesirable parts-replacement problem that could become critical during wartime.

In the Army's design, dimensions of the filter/separator vessel, the solids and water-removal media, and the media mounting will be specified, insuring that the media of every approved manufacturer fit into vessels manufactured by other firms in accord with government specifications.

The laboratories designed the separators in conjunction with Armour Research Foundation, Chicago, Ill. Type classification of the design is expected in fiscal 1963.

Pakistan water-well job to reclaim farm land

A water-well land-reclamation project in West Pakistan is currently under construction to reclaim land lost due to encroachment of salt, and to keep an additional 100,000 acres from being ruined annually. The area covered by the project contains close to 1.6 million acres lying between the four branches of the Indus River to the south of Lahore.

The project, undertaken by the international water engineering and contracting firm of Harold T. Smith International, S. A., is being financed largely through a United States Development Loan Fund.

The salinity problem Smith solved

was caused by the exceptionally high underground water level found in most of the Punjab area of West Pakistan. In many places, ground water is within a foot or less of the surface.

Because the water level is so high, moisture works its way up through the soil to the surface, where it is evaporated by the summer heat, which is intense for continued periods. As the water evaporates, it leaves behind deposits of mineral salts that gradually build up to the point where the concentration is so high that the soil can no longer support plant life.

The deep wells, each equipped with a Worthington vertical turbine pump to withdraw water from below ground and pump it into irrigation canals, will help lower the high water table

and stop the upward movement of water through the soil. Canals will take the water to other areas where the water table is at a normal depth and where irrigation is needed.

Mack personnel changes

Mack Trucks, Inc., Plainfield, N. J., has appointed Albert G. Crockett general sales manager. Crockett, now succeeds Theo H. Jones, who has been assigned to the company's Atlanta office as southern division manager.

Wallace Hallam and E. H. Dillow have been named manager and assistant manager, respectively, of field operations. Hallam was formerly Atlantic division manager in Philadelphia, and Dillow, Detroit district manager.

Detroit Diesel expands aid to distributors

The Detroit Diesel Engine Division of General Motors, Detroit, Mich., has named Ralph Pontius head of its distributor facility-planning section at the factory in Detroit.

Pontius, former regional service manager at San Francisco, will offer increased assistance to GM Diesel distributors in planning new buildings or reorganizing existing facilities for maximum efficiency.

Available on request by distributors, the service includes factory assistance in the selection of new locations, new building design, selection and layout of tools and equipment, and cooperation in planning every phase of service activity.



PERFECT CIRCLE
PISTON RINGS ARE
BUILT TO TAKE IT




THE FIRST HUNDRED HOURS ARE THE HARDEST

In any new or rebuilt engine there are many areas where moving metal surfaces must adjust to each other. Of all these areas one of the most important is the bearing surface between piston rings and cylinder wall. To assure rapid mating, and protect against "borderline lubrication," Perfect Circle compression rings are either chrome plated or coated with Ferrox.

Where Ferrox is required the coating acts as a polishing agent—much like jeweler's rouge—smoothing away surface irregularities, and protecting against scuffing. Only Perfect Circle offers genuine Ferrox protection.

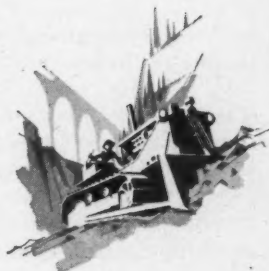
No matter how hard the wear, from first to last, Perfect Circle rings are built to take it. Use Perfect Circles every time—preferred for performance.

PERFECT  CIRCLE

PISTON RINGS • POWER SERVICE PRODUCTS • PRECISION CASTINGS • SPEEDOSTAT

HAGERSTOWN, INDIANA • DON MILLS, ONTARIO, CANADA

For more facts, use Request Card at page 18 and circle No. 267



PAYLOADER with exclusive 4-in-1 Bucket handles jobs that are impossible

for any other rubber-tired tractor-shovel

"Our '4-in-1's' do the work of 3 to 5 machines. No contractor should be without them," says a Superintendent in explaining how a PAYLOADER with Drott "4-in-1" Bucket reduces equipment investment, and time and labor requirements on many contracts.

This unique Bucket, says one PAYLOADER operator, "is like a magic wand because it can do so many things." What's more, because of its rubber-tire mounting, it can work on or off the highway — can work on streets and walk over curbs and sidewalks without damaging them.

It's a Clamshell and as such is most spectacular — and profitable. The powerful hydraulic clam action grips stumps, boulders, concrete slabs and other irregular shapes quickly and firmly; can deposit them gently in a truck. With the clamshell action, you can fill the bucket without forward motion of the tractor — can clean-up close to obstructions and pick up small piles of dirt from the street cleanly. One contractor says, "We save 90% of clean-up costs with the '4-in-1' unit."

It's a Bulldozer with the clam portion raised. The rear half of the "4-in-1" Bucket is a true bulldozer with an engineered moldboard curvature for smooth earth-rolling action. Accuracy and ease of control is possible because of the exclusive radius control and instant, responsive forward-and-backward tilt for depth control.

It's a Scraper — a bottom-loading scraper for stripping with fractional accuracy. Like a carpenter's plane, the blade of the bulldozer portion does the cutting while the clam segment ahead acts as a depth gauge — and all hydraulically controlled from the operator's seat. You cut whatever depth you want and the material boils up into the



PAYLOADER with "4-in-1" Bucket is a Shovel, Bulldozer, Clamshell and Scraper.

bucket. Like a carry-all scraper, too, it can spread its loads to desired thicknesses.

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Pipe-laying is another of the many ways these

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tractor-shovels can reduce your equipment and operating costs

When you buy a PAYLOADER you have *more* than a tractor-shovel. You have the most *proven* tractor-shovel, and the most *usable* — because of the many and unusual kinds of allied equipment that you can use with it. Several of these tools are available *exclusively* on rubber-tired PAYLOADER tractor-shovels.

Reduces Your Equipment Costs

With this one basic machine of broadest usefulness, you eliminate the big investment in specialized single-purpose machines. You continue to cut costs because you can keep a PAYLOADER busy more hours of the day and more days of the year.

Superior-Hough Sideboom is one of the useful and unusual pieces of allied equipment available exclusively on PAYLOADER tractor-shovels. It is provided for three Models with lifting capacities up to 6 tons at 4-ft. overhang. This Sideboom with 4-wheel-drive mounting can be used on paved streets or highways without damaging the surface. All Sideboom operations are powered by the PAYLOADER hydraulic system — the line winch by hydraulic motor, the booming and boom-telescoping by twin double-acting hydraulic rams. All controls are convenient to the operator at his regular position.

Backhoes are available for front or rear mounting on several PAYLOADER sizes and are recognized as the best-engineered in the industry. One of these can be rear-mounted on several PAYLOADER sizes along with the Sideboom and "4-in-1" Bucket, and any of these three tools can be used on the same job.

Blacktop Spreader interchanges with the bucket and has its own engine power. With hopper capacity of 2 cu. yds., it lays hot or cold mix up to 8-ft. wide and up to 6-in. thick



Sideboom does not interfere with bucket use

— instantly adjusts for widths up to 4 ft.

Vibratory Compactor is available for several 4-wheel-drive PAYLOADER models and interchanges with the bucket. It is self-powered and self-contained, and develops maximum densities in all granular soils.

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From the PAYLOADER line you can select the exact size and type of tractor-shovel that fits your needs and budget because there are eight basic sizes and more than twenty models.

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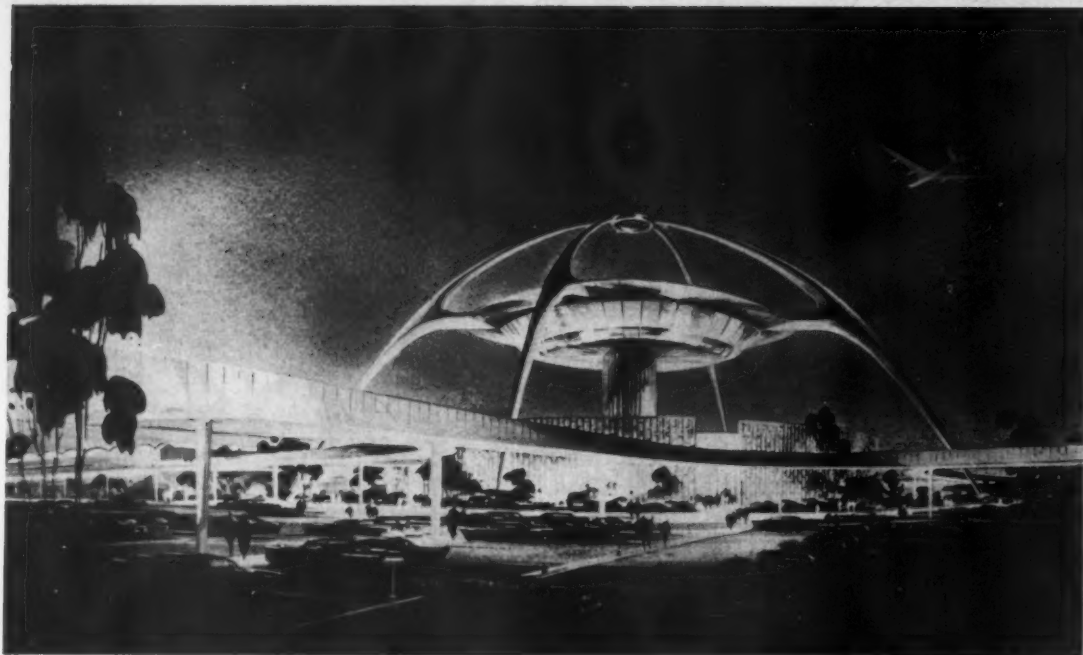
Title _____

Dept. _____

Street _____

City _____ State _____

4-B-2



Built-up steel box sections, furrowed, plastered, and sprayed with a protective coating, form the two intersecting parabolic arches that rise 125 feet into the air to form the Theme Building for the Los Angeles International Airport jet terminal. Restaurant roof and observation deck are supported from the horizontal legs of the arches; tapered plate girders cantilever out from a tension and compression ring to support the restaurant floor.



A huge special jig is used at the Montebello fabricating division of Kaiser Steel to assemble the diamond-shaped upper arch sections. They are 105 feet long and weigh 10 tons. At this point, the final skin plates are being welded by Kaiser crews.

Unique steel arches form focal point

Contractors and Engineers staff article

With the erection of the spectacular steel-arch framework of the Theme building, the construction of the new \$50 million jet-age passenger terminal at Los Angeles International Airport entered its finishing stages. Some of the units are scheduled for completion by June. All are expected to be in use before the end of the year.

Some units of the complex, built under separate contracts, are already

in service. The 12-story control tower and administration building is occupied from the sixth floor down by the airport administrative offices. The Federal Aviation Agency offices and facilities in the upper floors of the structure will be in use by late summer.

The utility and central service buildings are ready to begin supplying heat, air conditioning, and other services to the terminal area as soon as these are required. Paving of the

WESTERN OFFERS A COMPLETE LINE OF ROLLERS VIBRATORY — STATIC — PNEUMATIC



ONE-TON ASPHALT ROLLER. The ECONOMOL is ideal for "close-up" rolling . . . patching . . . driveways . . . parking areas. Complete water system, cone mate, dual rearview. A quality roller at LOW, LOW PRICE.



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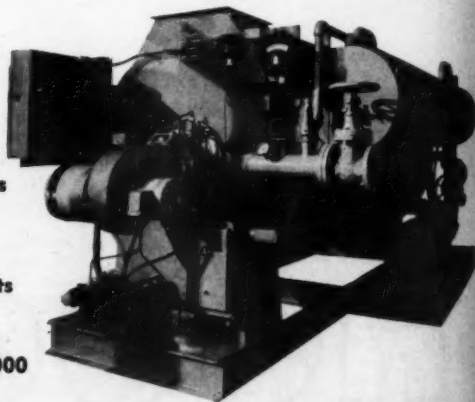
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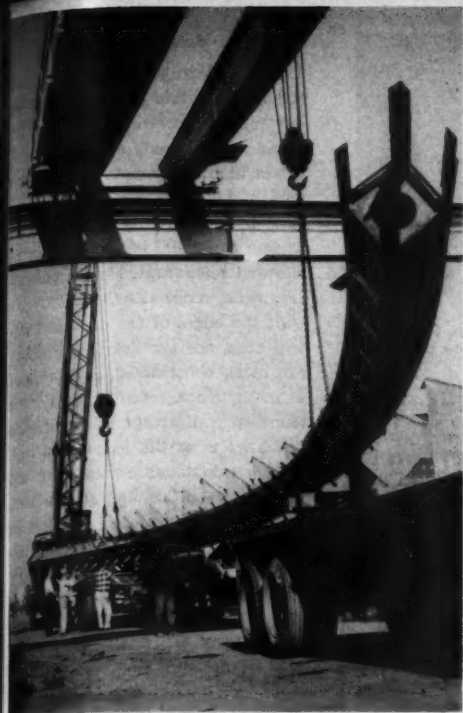
HOPKINS VOLCANIC SPECIALTIES, INC.

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CONTRACTORS AND ENGINEERS

ctions, furnished with a pre-arranged two intersecting arches that rise 135 feet from the Theme Building. Restaurant deck are supported by cantilevered impression ring floor.



The heavy and awkward top arch sections are loaded onto trucks and trailers at the Kaiser plant for transportation to the job site during the early morning hours.

che point jet air harbor

control tower building is on floor down by the offices. The offices and floors of the building are being built for the Los Angeles Department of Airports under a \$25 million contract by Robert E. McKee, General Contractor, Inc., El Paso, Texas. The huge jet-age terminal was designed by a joint ven-

aprons, taxiways, roads, parking areas, etc., is in progress and will be completed by the time the structures are ready for use.

The major passenger terminal buildings and the spectacular Theme building are being built for the Los Angeles Department of Airports under a \$25 million contract by Robert E. McKee, General Contractor, Inc., El Paso, Texas. The huge jet-age terminal was designed by a joint ven-

(Continued on next page)

The central concrete core has been placed and a crane is raising one of the upper arch sections into place. The arch will attach to the top weldment element, which is already in place, at a point 135 feet above the ground.



The last of the upper arch sections is set in place by a crane. When connections are completed, the shoring towers will be removed from the outer ends of the horizontal legs of the structures. Buildings in the background are utility and service facilities.



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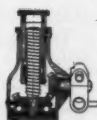
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4-WAY HEAD—19 MODELS**
10 to 24 tons capacity.
Ball bearing, Malleable Housing,
Safety peep hole.



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8 Models, three
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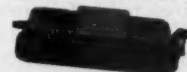
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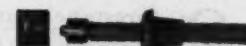
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22 Models, Drop-forged steel
—1 1/2" & 2" dia. screws.
Adapt to any width of trench.



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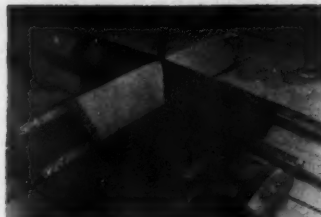
TEMPLETON, KENLY & CO.

2511 Gardner Road
Broadview, Illinois

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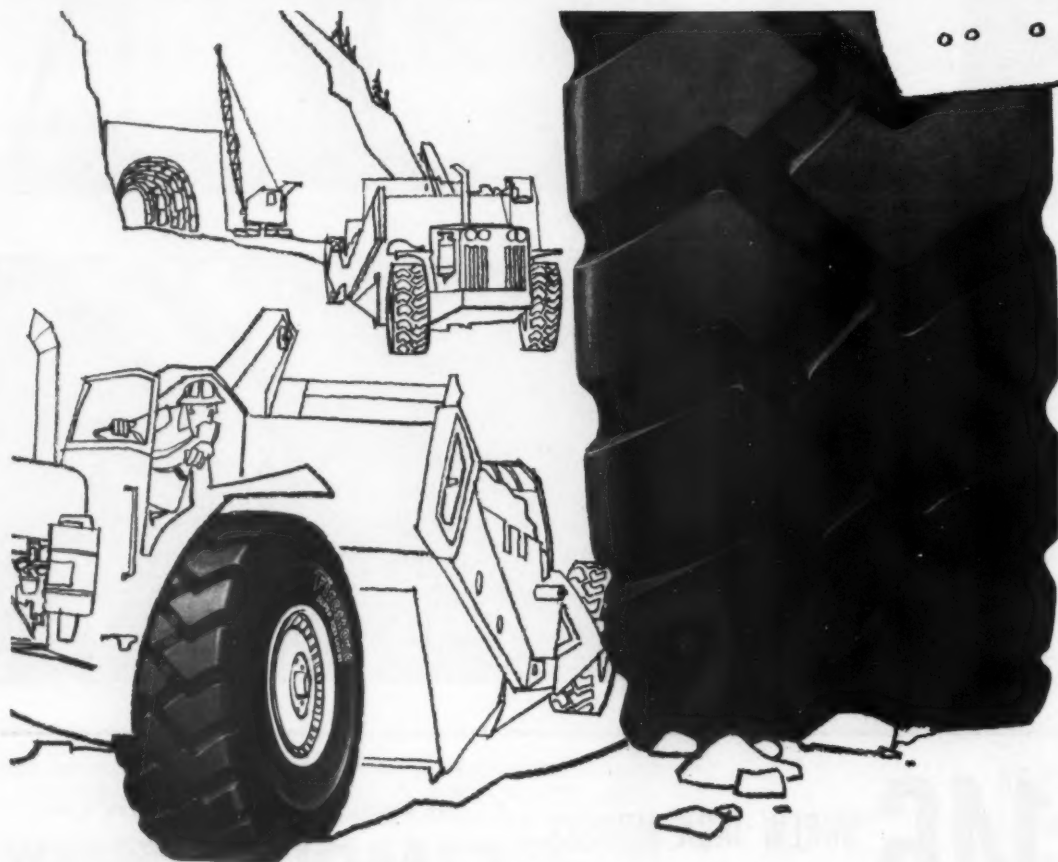
Workmen assemble box-girder sections that span between the lower arch sections and the concrete core. Note "angle" sections at corners built up of two 3½-inch-thick plates with full welds. Holes in diaphragm plates give access to interior.



This is the top weldment section that joins the four upper arch sections at the peak of the structure. The cover plates on this section are 36 inches wide. The weldment weighs two tons.

(Continued from preceding page)

ture of architects and engineers including Charles Luckman Associates, Coordinating Architects; Welton Becket & Associates, and Paul R. Williams, Architect.



Job records prove Firestone's GIANT TIRES, GIANT SERVICE PAY OFF!

1. **Firestone Giant Tires** pay off in terms of big savings with extra hours of use. That's why leading contractors depend on Firestone Super Rock Grip Wide Base* tires. This tire and the complete line of Firestone off-the-highway tires are built with Firestone Rubber-X and Shock-Fortified Nylon cord bodies to last longer.
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Satellite layout

The rectangular central portion of the complex has been graded down one full story below the level of the surrounding aprons and taxiways. A 6-lane highway leads to and from the area, and parking is provided for 8,000 cars. In the center of the area is the Theme building, which contains an elevated restaurant, lounge, observation deck, concessions, etc.

At the edges of the depressed central area, the six ticketing buildings are being constructed, and provision is made for a seventh when traffic demands it. Entrance to the ticketing buildings is at the parking-lot level. The semiautomatic ticketing and baggage facilities are at this level, while space is provided on the floors for air-line operations facilities. Ticketing buildings are so designed that a third floor can be added for future expansion.

Tunnels lead out under the aprons from the ticketing buildings to seven satellite buildings spaced around the central area. These passenger terminal structures are surrounded by aircraft parking aprons and taxiways, enabling planes to maneuver and park on all sides.

Escalators will carry passengers from the tunnels, a story below ground, to the second-floor level of the satellite buildings. This is the level at which passengers emplane and deplane. Each of the big buildings will have a restaurant, coffee shop, cocktail lounge, gift-newsstand, and the usual lobby facilities at this level.

Each of the six large oval-shaped satellite buildings contains 100,000 square feet of floor space and has ten plane-loading positions, all suitable for jet transports. The seventh satellite building, a rectangular structure at the extreme east end of the complex, has 76,842 square feet of floor space.

Theme building unique

While the ticketing and satellite buildings provide for the basic foundations of the terminal, the most unique and eye-catching structure is the Theme building in the center of the parking area.

Two intersecting parabolic arches soaring 135 feet from the floor of the parking area form the graceful silhouette of the structure. They support the roof of the mushroom-shaped glass-enclosed restaurant 70 feet above the parking level. The observation deck on the restaurant roof is 86 feet above the ground.

The arches are built-up steel box sections, furred and plastered, and then sprayed with a vinyl protective coating. Horizontal legs connect the arches to the concrete central core of the structure, which contains freight and passenger elevators and stairways. In addition to the elevated structure, the Theme building also has a ground-level unit containing an employee cafeteria and central kitchens and commissary for the restaurants in the satellite buildings.

The furnishing and erection of the 7,300 tons of structural steel for the several structures in McKee's contract were subcontracted jointly by

CONTRACTORS AND ENGINEERS

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Kaiser Steel Co. and Vinnell Steel Co., with Kaiser Steel's Montebello fabricating division handling the complicated 900 tons of steel in the Theme building.

The center line of the arches for the Theme structure conforms to a parabola formula that Kaiser Steel fed into its IBM computer to figure the dimensions required to achieve the compound curvatures of the arches when the pieces were cut from flat steel sheets. The results provided smooth lines rather than tangential segments for the silhouettes of the arches. The IBM, incidentally, was used only to check already accomplished hand calculations.

Each of the arch legs was fabricated in two sections. The lower arch sections were 107 feet long and weighed 39 tons each. The upper arch sections were 105 feet long and weighed 10 tons each. Boxes are made up of 3/8-inch-thick steel skin plates with 3/8-inch-thick diaphragm plates at 8 feet on centers. A 2-ton top weldment section joins the upper arch sections at the peak. Four horizontal box girders span 83 feet from the top of the lower arch sections to plate attachments encased in the concrete central core. Each arch leg has an inspection door at the core attachment with a ladder extending down each leg through 2-foot holes in the diaphragm plates.

Kaiser built some large special jigs in the shop for the assembly and welding of the plate and angle box sections. These jigs rotated to permit the welding of all seams in the horizontal and flat positions. A fully automatic submerged-arc welding machine, devised and assembled at the plant, made these welds.

While most of the sections are made up of relatively light plates and angles, the 38-ton horizontal legs required some heavy special angles. These were made up on the job by welding pairs of 3 1/2-inch-thick plates together.

Steel clips were welded to the exterior of the arch sections to carry the steel furring channels that support the metal lath and plaster covering the arches.

The long, bulky prefabricated sections were loaded on truck-trailer rigs at Kaiser's Montebello plant and transported over miles of city streets to the airport during the light traffic hours of the very early morning.

Cast concrete core

Meanwhile, McKee's crews had built the footings for the arches, installed the 4 1/2-inch concrete-encased buried tie rods that connect the opposing legs, and constructed the central core. This core is supported on a reinforced-concrete pile cap 66 feet in diameter and 6 feet thick, supported by 171 concrete piles installed by Raymond Concrete Pile Co. The piles are 30 feet long. Pile-cap grillage was composed of No. 9, 11, 14, and 18 steel reinforcing rods. The bottom reinforcing grillage was composed of No. 18 steel at 9 1/2-inch centers.

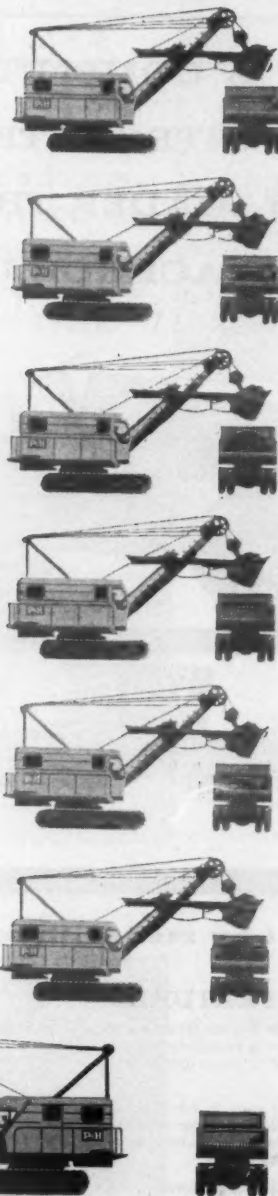
The reinforced-concrete core is
(Continued on next page)



The tension and compression ring embedded in the concrete core at the restaurant floor level is made in two pieces, each of which weighs about 15 tons. The radial cantilever beams support the floor.

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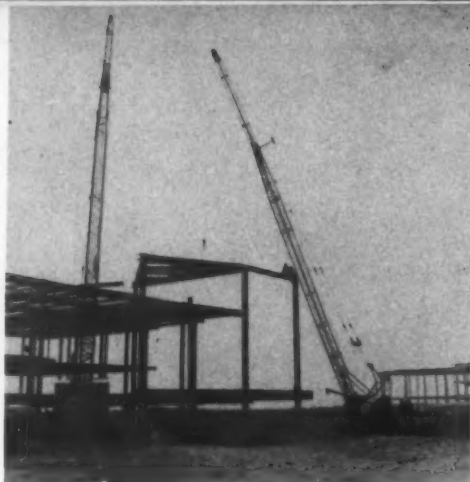
tenance with Magnetorque is the replacement of inexpensive carbon brushes every few years.

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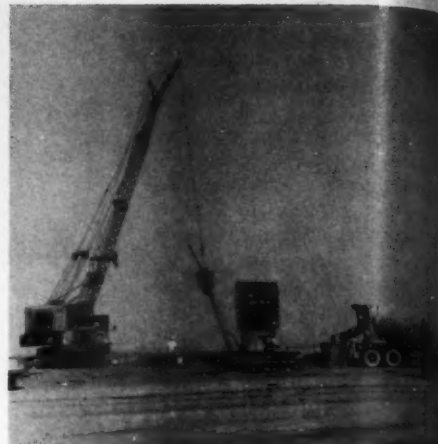
HARNISCHFEGER P&H
Milwaukee 46, Wisconsin

For more facts, use Request Card at page 18 and circle No. 275

Two American 30-ton truck cranes with 85-foot booms and 30-foot jibs erect the steel frame for one of the satellite buildings. There are seven of these passenger terminals surrounded by aircraft parking aprons and taxiways. Access to the buildings is by tunnel.



A Koehring 305 truck crane on an FWD carrier places concrete for one of the ticketing buildings, which are located below the ground level of the aprons around the satellite arrival and departure buildings. The mix is delivered by a Challenge mixer on Challenge-Cook truck.



(Continued from preceding page)

34 feet in diameter and 100 feet high. It was built in 15-foot lifts using conventional forming and casting methods.

Wales for the circular exterior form were built of segments cut to the 34-foot diameter. They were faced with vertical sheathing, which was lined to produce the desired architectural effect.

Inside, the forming was extremely complicated, since two stairways and wells for three passenger elevators and a freight elevator, plus mechanical and electrical shafts, were all formed and cast monolithically with the outer shell.

The concrete, supplied in transit mixers, was placed by a Link-Belt HC-88 crane using a Gar-Bro 1-yard bucket.

At the 70-foot level, the forming and casting were still further complicated by the installation of the structural-steel tension and compression ring that had to be encased in the concrete at this elevation.

The steel arch sections and the horizontal legs were set by a Manitowoc 45-ton crane assisted by the smaller Link-Belt machine. Steel falsework towers 80 feet high were used to support the outer ends of the four horizontal leg members during the erection and until the field welding of all connections could be completed.

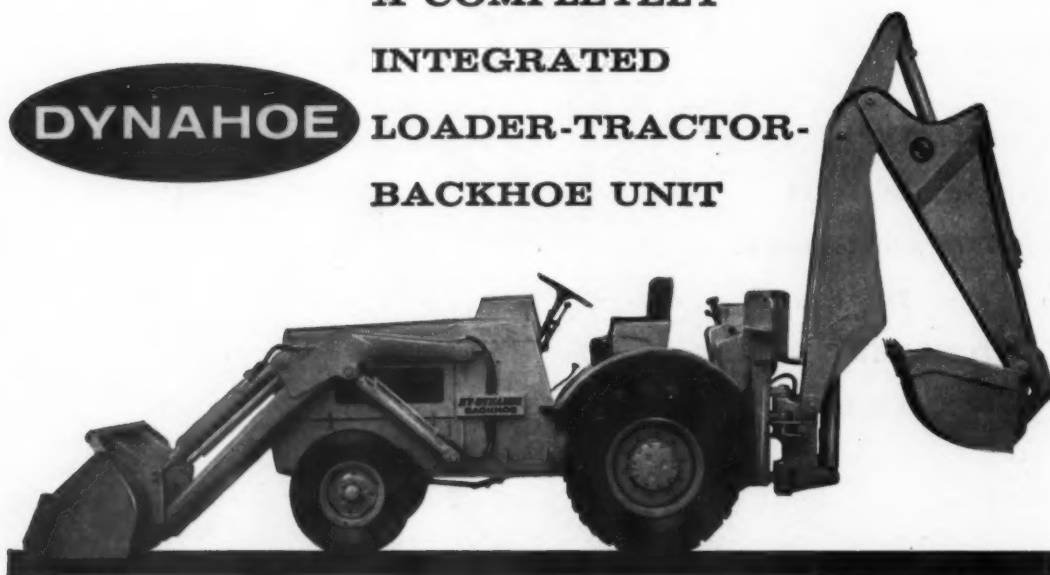
A series of tapered plate girders, 34 feet long, cantilever out from the tension and compression ring in the central core to support the restaurant floor. Its roof and the observation deck are supported from the horizontal legs of the arch structure.

Other structures

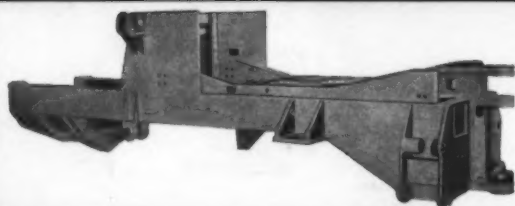
The structural-steel frames for the satellite buildings were furnished and erected by the Vinnell Steel Co. The steel for the ticketing buildings was supplied by Kaiser. The field connections for all of these buildings are bolted with high-tensile steel bolts.

The exteriors of the satellite buildings feature wide expanses of tinted glass that will give passengers and spectators a full view of the activities on the field outside. The interiors and boarding facilities are being designed and built to the specifications of the air lines that will occupy the buildings.

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Massive Foundation Frame. Only this design can provide the stamina and strength so vital to successful heavy duty Backhoe performance.

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SPECIAL EXCLUSIVE FEATURES

Unit Construction: The complete Loader-Tractor-Backhoe is built as ONE INTEGRATED UNIT... differing completely from machines consisting of a standard tractor to which loader and backhoe attachments have been added.

New Operating Advantages: Extremely easy to handle... unusual visibility for both backhoe and loader operations. Operator's seat quickly pivots to either loader or backhoe controls. Either 4 or 6 handle backhoe controls.

Extremely Heavy-Duty Construction: All major component parts, such as frame, buckets, booms, dipper, etc., are exceedingly heavy duty.

Good Traction: Maximum tire flotation is provided in BOTH front and rear axles.

Oversize Pins and Bushings:... for greatest strength and wear... Zerk fitting lubricated.

Fast Swinging and Digging: Adequate hydraulic power guarantees especially fast backhoe boom swinging and digging action.

Loader Bucket: ¾ yd. struck.

Backhoe Bucket: 7.8 cu. ft. std. Digs 14 ft. deep.

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Exclusive Design: The only machine engineered as a single, completely integrated Loader-Tractor-Backhoe unit.

Power Steering: Easier to drive on the road and to operate in the field. Adequate weight on steering wheels for 18 to 20 m.p.h. highway travel.

Transmission: 3 speed with torque converter and power shift forward and reverse provides easier, faster operation for all backfilling and loading jobs.

Buckets:... are of extra heavy construction. Bucket teeth with replaceable caps on Backhoe.

Weight Distribution: The unit has proper weight distribution on both rear and steering axles to provide the best flotation, operating and best highway driving characteristics.

Heavy Planetary Rear Axle.

65 H.P. 6 Cyl. Engine.

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The final major contract provides for the paving of the north apron and installation of underground field lighting.

Personnel

In charge of the joint venture of architects and engineers was Donald E. Wilcox, project manager, with Oliver G. Johnson as deputy project manager of field operations, Harrison L. Whitney as coordinating field architect, and Evans Lorenze and Jim Santiago as field superintendents.

The entire project is under the jurisdiction of the Los Angeles Board of Airport Commissioners, with Don Beking as president. Francis T. Fox is general manager of the Department of Airports. **THE END**

Vehicle noise and fumes discussed in HRB booklet

The Highway Research Board has published a 10-page booklet, "Selected Bibliographies on Vehicle Noise and Fumes."

The booklet contains separate discussions on the status of the vehicle noise and fumes problems, in both cases emphasizing measures that have been undertaken to combat them by such groups as the Automobile Manufacturers Association and the Air Pollution Control Association.

The booklet may be obtained from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. Price is 50 cents.

Thor acquires control of Italian firm

■ The Thor Power Tool Co., Aurora, Ill., has bought sole control of FIAP (Fabbrica Italiana Apparecchi Pneumatici), Turin, Italy's largest manufacturer of air tools. The acquisition marks Thor's second expansion into overseas manufacturing operations; it purchased Armstrong-Whitworth & Co. Ltd., England, in 1951.

Thor also acquired, by its Italian purchase, a substantial minority in FIAP Espanola, a company in Barcelona, Spain.

For more facts, use Request Card at
page 18 and circle No. 277

APRIL, 1961



HAULING EXCAVATION on a 14-mile stretch of the new Northwest Expressway in downtown Chicago, a Mack truck equipped with Caterpillar 1673 truck diesel receives 25 yards of sticky gray marine clay from 1 3/4-yards of sticky gray marine clay from a 144-the clay 16 miles to a dump in the suburbs, taking about 90 minutes for the round trip. This specially powered truck, part of a fleet of semitrailers, averages 6 round trips per 10-hour day through heavy traffic at speeds ranging from creep to 50 mph. The contractor on the job is Greco Contractors, Inc., Rosemont, Ill.

RENT

A JACKSON

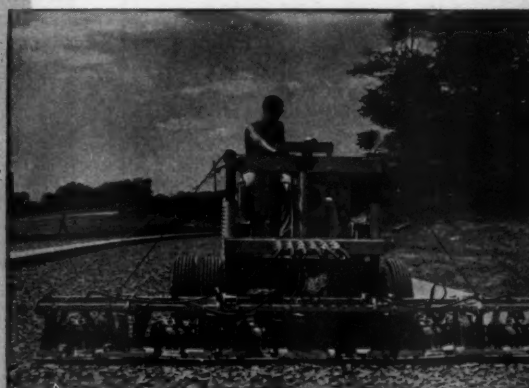
**IT'S A SOUND, NO-RISK WAY OF DISCOVER-
ING THE FASTEST, MOST EFFECTIVE AND BY
FAR THE MOST INEXPENSIVE METHOD OF
COMPACTING GRANULAR SOILS; BASE
COURSES, FILLS AND SOIL-CEMENT MIXES.**



Changing from the 13 ft., 3 inch working width to 88 inches overall for road travel or maneuverability on the job is accomplished hydraulically in just 30 SECONDS.



The new widening attachment (optional at added cost) is raised or lowered instantly. Makes the JACKSON by far the most efficient compactor for widening projects.



As one contractor on a federal highway project put it: "We rented this vibratory compactor from our dealer just for this job, but we're so pleased with its performance that we'll probably buy it. It has the versatility and punch to handle all our compacting, both big and small jobs, on slopes and level ground — QUICKLY."

VERSATILITY? Look at the illustrations. Then consider, too, that the individual compactor units may be fitted with operating handles and used as self-propelling units to compact the tight places other equipment can't touch. Also that the JACK-SON operates in either direction, no deadheading or turning around is required.

PUNCH? 4200 3-TON BLOWS PER MINUTE

from each of the compactor units provide extremely high productivity. 100% of specified density is frequently attained in a single pass. And the JACKSON does not leave the top 1-inch of the lift in a loose condition . . . a very important consideration. Maintenance and operational costs are extremely low.

Discover the outstanding time-and-money-saving opportunities afforded by the JACKSON MULTIPLE COMPACTOR by renting one from your Jackson Distributor. Name and further details on request.

JACKSON VIBRATORS, INC.

What's behind

Contractors and Engineers staff article

A contractor views equipment auctions with mixed emotions. He's glad to see competition dropping out, but he's scared that he may be next.

Many contractors, looking apprehensively at the large number of equipment auctions being held around the country, are asking themselves: "Just what are the reasons behind the sales?"

In an effort to answer this question, our midwestern field editor interviewed a number of contractors who had held auctions. The reasons for the sales turned out to be as varied as construction work itself. One thing was sure: The contractors weren't making easy money at what they were doing. Some were losing money. Some were so far in debt, they had to sell off their equipment.

In a search for profits, some con-



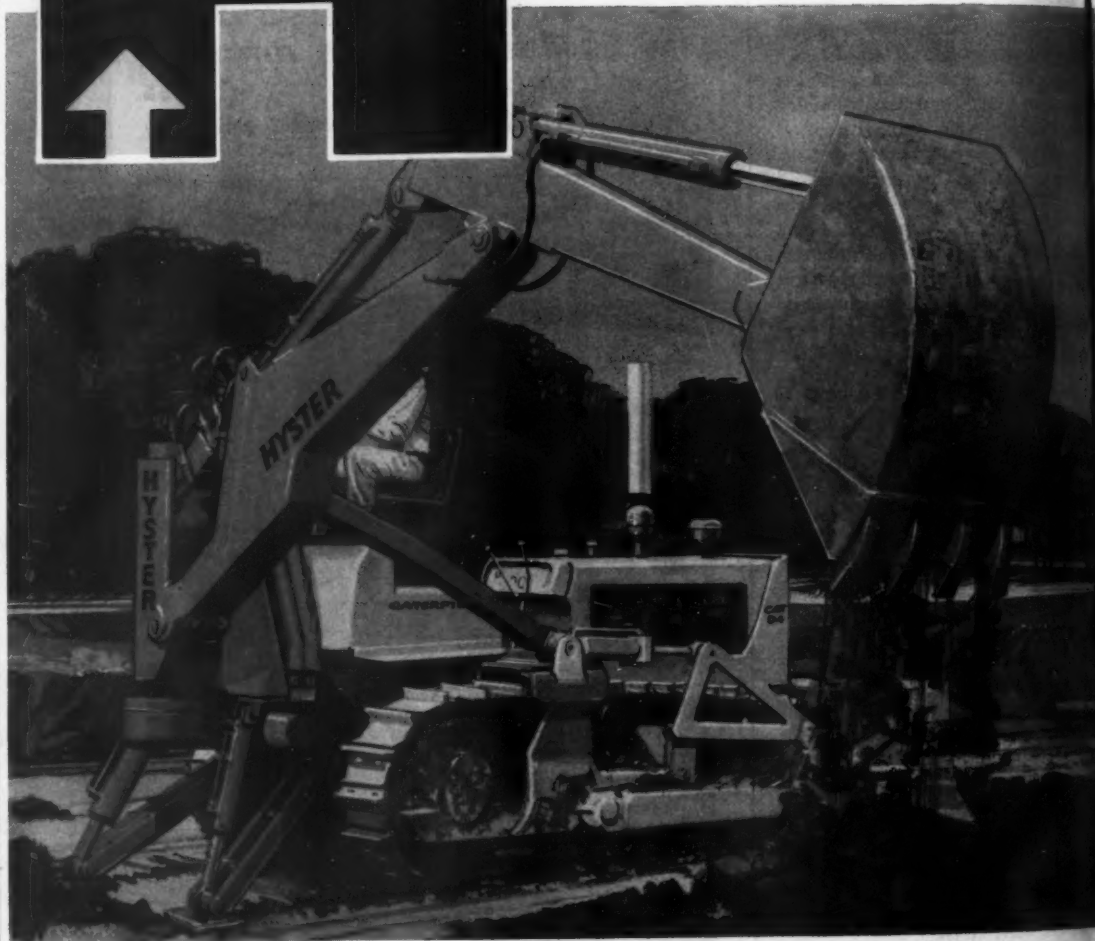
Many of the contractors contributing to this article are lucky or careful. A number are not quitting the business; those that are doing so voluntarily go with a clean slate. But their experiences give a more personal meaning to the record of contractor failures kept by Dun & Bradstreet.

Despite the fact that 1960 was a record year for contract awards, contractor failures reached a new high of 2,607 compared to 2,064 for 1959. This is an increase of 26 per cent. The percentage of liabilities shows an even worse picture: they were \$121,883,000 in 1959 and \$201,369,000 in 1960—an increase of 65 per cent. Last year was not unusual; it was simply the newest year in a decade that showed failures almost tripling. Total failures in 1950 stood at 912. In 1953, they were 1,024. By 1957, they totaled 2,105, and in 1959 and 1960, they went to 2,064 and 2,607, respectively. In this period, liabilities jumped from \$25,651,000 in 1950 to the current \$201,369,000.

The reasons for last year's staggering increase in firms closing shop, and in the frightening losses sustained, cluster around the cost-price squeeze, which is not unique to the construction business. But the situation caused by spiraling prices of equipment, material, and labor in the industry is aggravated by the mushrooming roster of contractors and cutthroat bidding that keeps chopping down contract prices.

Of the 2,607 failures in 1960, the greatest proportion—2,357—apparently went under because of these reasons: inadequate sales, 948; competitive weakness, 782; receivables difficulties, 394; heavy operating expenses, 265; excessive fixed assets, 111; inventory difficulties, 60; and poor location, 7. Some 155 mentioned miscellaneous causes relating to management, cost, price, and competitive factors.

Of the remaining 250 contractors, 84 threw in the towel apparently because of neglect, 123 for reasons unknown, 32 for fraud, and 11 because of disaster. These 250 represent less than one-tenth of the total failures. The difficult operating conditions in construction today caught up the remainder of the 1960 failures and forced them out of business. Significantly, much the same reasoning is given by the contractors that auctioned part or all of their equipment and provided interviews for this article.



**Handles up to 13.5 Cu. Ft. at a bite
...more than 4 payloads a minute**

The new Hyster Backhoe is a high production rig. Handles a 30-inch dipper as easily as competitive machines handle 16-inch dippers...digs up to 93 cu. yds. per hour. This rugged hoe, built to take it, will help you make a profit, even on your toughest jobs.

**Designed for these Caterpillar built machines:
D4 TRACTOR
No. 955 and 955H TRAXCAVATORS
HT4 TRAXCAVATOR**

Caterpillar and Cat are registered trademarks of Caterpillar Tractor Co.

**Compare
these
Production
Figures**

Equipment auctions?

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tractors were selling off their earth-moving equipment and going in to paving. Other contractors were selling off their paving equipment and going into earthmoving.

Although there were comparatively few forced sales around the country, many who were selling did so because they saw the handwriting on the wall. With the future looking no better than the past, they decided to sell.

Then, too, there was the usual

amount of retirement sales. Contractors, getting along in years with nobody to give their troubles to, sold off their equipment. Joint ventures, upon completion of a contract, often held an auction. The several contractors figured it was easier to divide the money than the equipment.

At any rate, there were all kinds of reasons for the sales. Here, several contractors—and a leading auctioneer—tell their own stories.



Floyd and Abbie Stapp, husband and wife who head Floyd Stapp Construction Co., Inc. Rapid City, S. Dak.
"Quitting while we're ahead."

Contractor "X" is a midwestern firm that prefers to remain anonymous. This company was caught with a lot of equipment doing work at too low prices.

In 1958, we expanded to meet the promised boom in interstate highway construction. Our main line was concrete paving and bridges. The interstate construction never boomed. Contractors were hungry for work, and bid prices were forced down.

Rather than let our equipment stand idle, we took the work at the low prices. Since ours was a young company that had expanded fast, it had certain difficulties in getting the right men to fill the right jobs. On some of the work, the firm had bad luck with the weather.

It wasn't long before we began to realize that we were spending more money than was being made. But the firm carried on, hoping that soon it would be over the hump. The bank wasn't as optimistic; it shut off credit.

With no ready cash available, we were forced to close down the contracts we had under way. Two bonding companies assumed responsibility for about \$5 million worth of work. Last year, the firm and its affiliated companies held an auction of practically all their equipment.

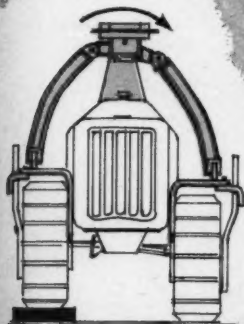
It's been quite an education, but I don't know whether we can afford the tuition. Looking back on the experience, I can now advise contractors to make sure they get a bonding company that is familiar with construction. A qualified outfit can save you money when it takes over the work. An unqualified outfit can lose you

(Continued on next page)

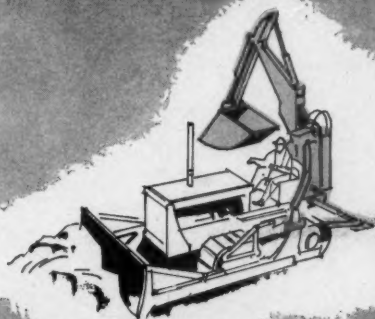
HYSTER HYDRAULIC BACKHOE OUTDIGS THEM ALL!

7,800 lbs. of Working force*

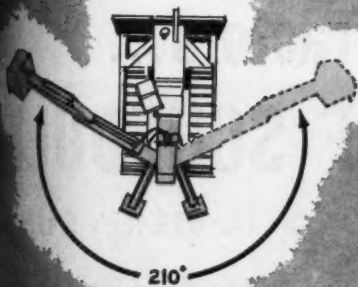
THE HOE THAT'S BUILT TO MAKE YOU MONEY!



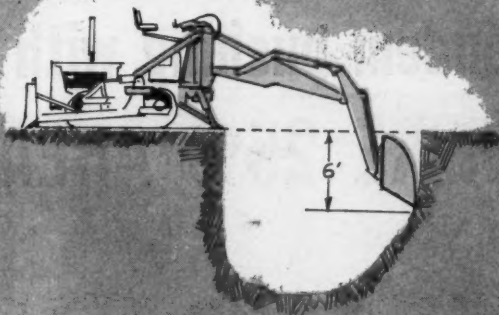
REAR TRACK OSCILLATION is provided by exclusive leveling equalizer beam which compensates for back-sway strut movement as tracks oscillate.



ONE MACHINE DOES THE WORK OF TWO—Use the tractor with backhoe mounted for heavy-duty bulldozing, leveling up, clearing and back-filling.



210-DEGREE SWING—WIDEST IN THE INDUSTRY. Digs full 12'6" depth through 200 degrees. Wide angle offers greater choice in locating spoil pile at trucks.



DIGS STRAIGHT BACKWALLS TO 6 FEET DEEP—A result of 143-degree dipper curl. Full digging depth 12'6". Maximum reach from center of swing is 17'4 1/2".

TWO PUMPS—provide full-power simultaneous swing and boom or stick operation.

Actual on-the-job production:

30" DIPPER

Pit excavation . . . 93 cu. yds. per hr.

Trenching . . . 62.6 cu. yds. per hr.

22" DIPPER

Pit excavation . . . 71.4 cu. yds. per hr.

Trenching . . . 47.4 cu. yds. per hr.

* Working Force—Key to High Production

The only hydraulic hoe that has the required tractor weight to convert 7,800 pounds of breakout force into 7,800 pounds of working force. That's why no other tractor mounted hydraulic hoe can match the production...and the profits you get with the new Hyster Backhoe.

Call your Caterpillar-Hyster Dealer for details and demonstration

HYSTER COMPANY TRACTOR EQUIPMENT DIVISION

TRACTOR EQUIPMENT DIVISION - Construction and logging equipment
INDUSTRIAL TRUCK DIVISION - Lift trucks, mobile cranes, straddle carriers
MARTIN TRAILER DIVISION - Heavy machinery hauling trailers
INTERNATIONAL DIVISION - Overseas manufacturing, sales and service
Manufactured in: Portland, Oregon (Home Office) • Danville, Ill. • Peoria, Ill. • Kewanee, Ill. • Australia • Brazil • England • France • The Netherlands • Scotland • Union of South Africa



For more facts, use Request Card at page 18 and circle No. 278



Putting a shine on an Etnyre distributor in preparation for the auction of Floyd D. Stapp requires a lot of steam and hard work.

W. Watson, M. W. Watson, Topeka, Kans.

"We're getting out of profitless road building and continuing commercial building work."



(Continued from preceding page)

money. I know, because I've had both kinds.

When you sign up with a bonding company, go further than the salesmen. Find out for sure what the company's policies are if they have to take over the work. Believe me, there's a lot of difference between what the salesmen tell you and what the claims men tell you.

As far as finances are concerned, hold your liquid position, even if it costs you money. There's a time to refrain from buying equipment, and it will save you money.

Floyd Stapp Construction Co., Inc., Rapid City, S. Dak., is a small road-building firm headed by a husband-and-wife team, Floyd and Abbie Stapp. The 14-year-old company does about \$600,000 worth of work each year in gravel-base and oil construction. Quitting while it was ahead sums up the reasons for the firm's \$250,000 equipment auction held last September.

Although 1959 was a profitable year for us, it looked as though 1960 would be a losing one. In the spring of '60, we unsuccessfully bid a couple of jobs at rock-bottom prices. We bid \$191,000 on one job that went for a low bid of \$152,000. We couldn't afford to fight this kind of competition and decided to withdraw.

There were other reasons, too. I'm just plain tired of fighting the battle against poor help, rising wages, and increasing costs. You can't find enough men to take pride in their work any more. You pay them more, and they deliver less.

But don't get me wrong. Construction has been good to us. We've worked hard at it, and it has given us a wonderful return. Although the money is not the only important part, we still don't like to work for nothing. It looked as if that's what we'd be doing if we continued in business.

M. W. Watson, Topeka, Kans., was founded in 1923 by Martin W. Watson, its present owner, and 1941 national president of the AGC. The company has had, until recently, a widely diversified operation. During 1959, for example, it did about \$6 million worth of work in earthmoving, concrete paving, bituminous surfacing, sand and gravel production, and commercial building. Earthmoving accounted for

about \$1.5 million of the annual volume. The reason behind its auction: to get out of the unprofitable earthmoving business and continue in building construction.

Over the past several years, I saw profits in highway grading steadily diminish. In 1959, the company actually lost money on its earthmoving. I saw the handwriting on the wall and decided to quit this line of construction.

In May of last year, we held an auction of earthmoving equipment that realized a gross of \$251,000. Much of the equipment was Caterpillar, which

has a good resale value.

Why can't a capable contractor make any money in the earthmoving business? Basically, it's a case of too many contractors and not enough work. One of the reasons why there are too many contractors is that the equipment people are offering too attractive purchase terms to new small operators. The new small operator buys the equipment on time. He has to take work at cutthroat prices in order to make the large payments on his equipment. The established contractor, who knows his costs, knows he cannot compete with this kind of operation.



Tandem pushing with D9 Tractors... "WE'RE 25% AHEAD OF SCHEDULE"

V. H. RIEKE, SUPT.

It's a case of a good thing made even better. Grosshans and Peterson Inc., of Marysville, Kansas, have long been sold on the advantages of tandem loading. Now they are more enthusiastic than ever. The reason? Their new tandem pushing equipment. Vincent H. Rieke, superintendent on the contractor's two million yard Interstate 235 job near Wichita, reports, "Our two new Cat D9E power shift Tractors with Pushin'-Cushin'* attachments have increased our pusher production 20-25% over our older uncushioned units. We've had to bring in two more scrapers to keep up the pace—are 25% ahead of schedule."

The Cat D9E Tractors in tandem get full

loads . . . fast loads. In addition to power, two factors ideally suit the D9 to this task: the power shift transmission permits split-second, on-the-go speed changes with finger-tip ease to meet changing load requirements; and, the special pushloading equipment allows smooth, on-the-run contact with scrapers, eliminates dead seconds from loading time.

Tandem pushloading may be a real money-making proposition on your job. Your Caterpillar Dealer will be glad to discuss job requirements, demonstrate the D9 and its complete line of pushloading equipment. See him soon.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

* M4, by Pushin'-Cushin', Inc., Perry, Kansas

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Profits in the earthmoving field are greatly restricted because of federal income-tax regulations. Under existing regulations, we can't depreciate equipment based on its replacement value. And because of continual increase in prices, the depreciation reserve won't buy new equipment. In order to replace equipment, a contractor has to make a large profit, but that profit is, in itself, depleted by heavy income taxes. Rather than being a money-making tool, a large fleet of equipment frequently becomes a heavy financial burden.

But there are other, secondary reasons for our auction. I'm easing down



The auctioneering team of Forke Bros., Lincoln, Nebr., are left to right, Avery, Herb, Dean, Don, and Ted. Herb is father of Avery and Dean.

"When you need cash instead of crawlers, call on us."

on my work load. I've incorporated a company known as M. W. Watson and intend to limit its operations to building construction. In contrast to road building, building construction requires far less equipment and the operations are more centrally located. My son-in-law, who will eventually take over the company, is interested only in building construction.

I've already sold the concrete-paving equipment to Swenson & Hites, Kansas City, Mo., and am thinking of auctioning the bituminous equipment this spring.

Forke Bros., Auctioneers, Lincoln, Nebr., has this slogan: "When you need cash instead of crawlers, call us." One of the best known auctioneer firms in the business, Forke (pronounced "four-key") Bros. has been in operation since 1921. It has been specializing in heavy-equipment sales since 1945. The year 1959 showed a slight increase in the number of its nation-wide auctions over the previous year. Surprisingly, only 5 of the 52 auctions held were forced by creditors. The remainder were for contractors who were retiring, cutting out one line, reducing the scale of their operations or estates, or dissolving a joint venture. Of the auctions held, nine were for dealers who were overstocked with equipment.

Prices brought in 1959 varied somewhat in different sections of the country because of the federal interstate program, lack of federal funds, and the steel strike. On the whole, late-model equipment brought good-as-ever prices, while prices dropped off on the older equipment.

Forke Bros. has a good reputation. It so happened that all the contractors interviewed for this article had their auctions conducted by Forke Bros. and, though some were disappointed in the price equipment brought, all had a favorable word for the auctioneer. Avery Forke, one of the partners, has some good suggestions for firms considering an auction.

There is no best time of the year to sell equipment; there is no "best season." With the exception of a cold, snowy winter, selling seasons are about equal. According to our records, equipment brings substantially as high a price in the fall as it does in the spring.

If a contractor is contemplating an auction, he should hire a reputable auctioneer. It's reported that there are auctioneers around the country who permit rigging of an auction, supposedly to protect the contractor. Men—called shills—are planted in the audience to buy back equipment if the price doesn't go high enough to suit the seller. This practice causes buyers to lose confidence and their appetite for auctions. If an auctioneer

(Continued on page 46)

WHY D9E GIVES YOU EXTRA PROFIT ON EVERY JOB

POWER 335 HP turbocharged D353 Engine provides muscle for big loads, is dependable and economical.

MASSIVE UNDERCARRIAGE New high in durability. Quality materials and selective heat treating extend life on toughest jobs. Cam-type equalizer bar provides superior sidehill stability, increases operator confidence.

TORQUE-DIVIDER POWER SHIFT TRANSMISSION (optional). Shift on-the-go in a split second with

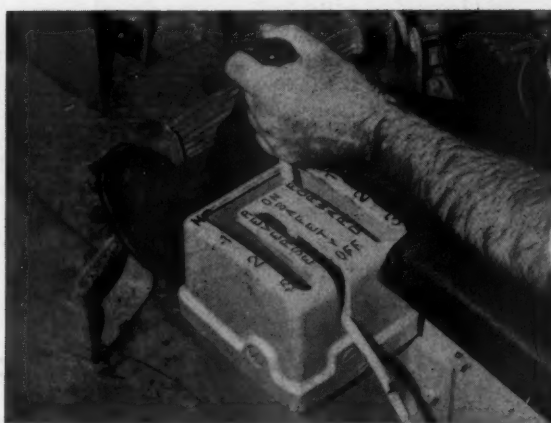
finger-tip ease... even under full load. Exclusive torque divider combines anti-stall characteristics of a torque converter with operating snap of direct drive.

PLUS: Lifetime lubricated track rollers, easy-to-service dry-type air cleaners, convenient hydraulic track adjusters. Unexcelled operating ease, comfort and safety.

Caterpillar offers the most complete line of big-tractor attachments and tools available to keep your production profitable.



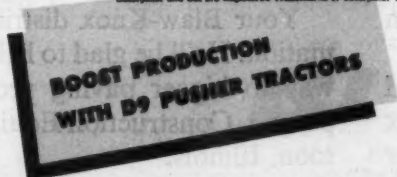
Smooth on-the-go contact... up to 3 MPH! Pushin'-Cushin'® is one of several specialized pushing attachments available for the D9E. Attachments like this increase the machine's usefulness.



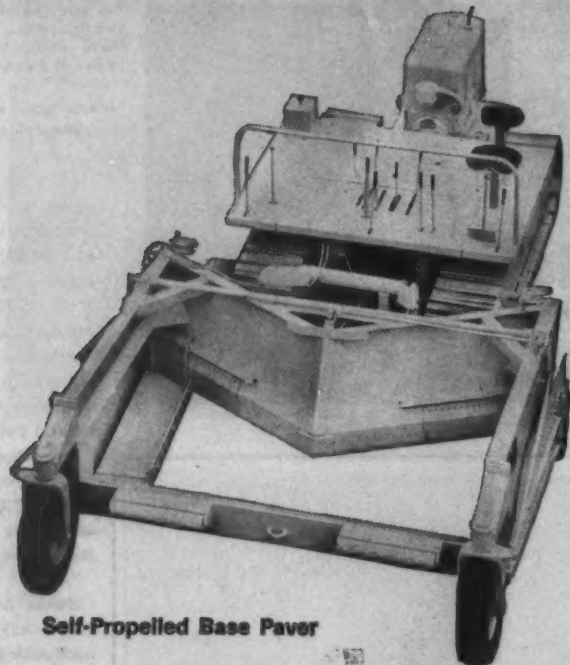
The Cat power shift transmission is designed to give you plenty of power fast in the highest gear possible. Ease of shifting lets operator get more work out of the tractor, lessens his fatigue.

CATERPILLAR

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For more facts, use Request Card at page 18 and circle No. 279



Self-Propelled Base Paver

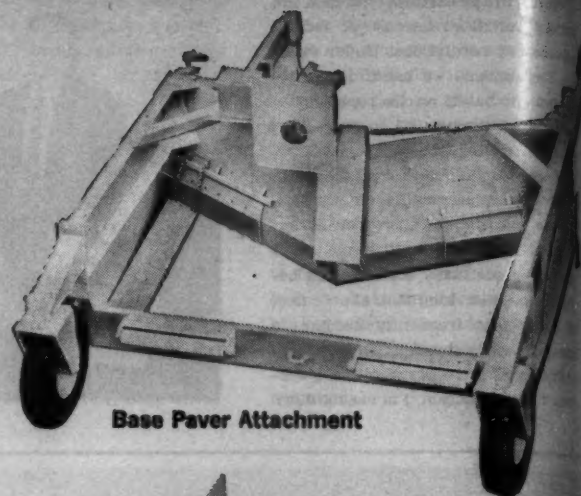
Self-Propelled Base Paver—Big capacity unit spreads stone, slag, gravel, soil cement or plant mix aggregates 1" to 20" deep in widths from 10'-10" to 16'-0", at the rate of more than 400 t.p.h. Tractor unit is equipped with 21" wide crawler shoes for maximum traction and flotation on softest base. Equipped with high-speed oscillating screed, front wheel power steering, dual controls. Four forward and four reverse working speeds, one forward and reverse travel speed.

Base Paver Attachment—Big capacity unit designed especially for use with standard tractors of sufficient power. New universal hitch makes attachment easy. Equipped with its own engine-driven oscillating screed, and mechanical crown adjustment. Spreads stone, slag, gravel, soil cement and plant mix aggregates 1" to 20" deep in widths from 10'-10" to 16'-0". Hopper lifts completely for travel.

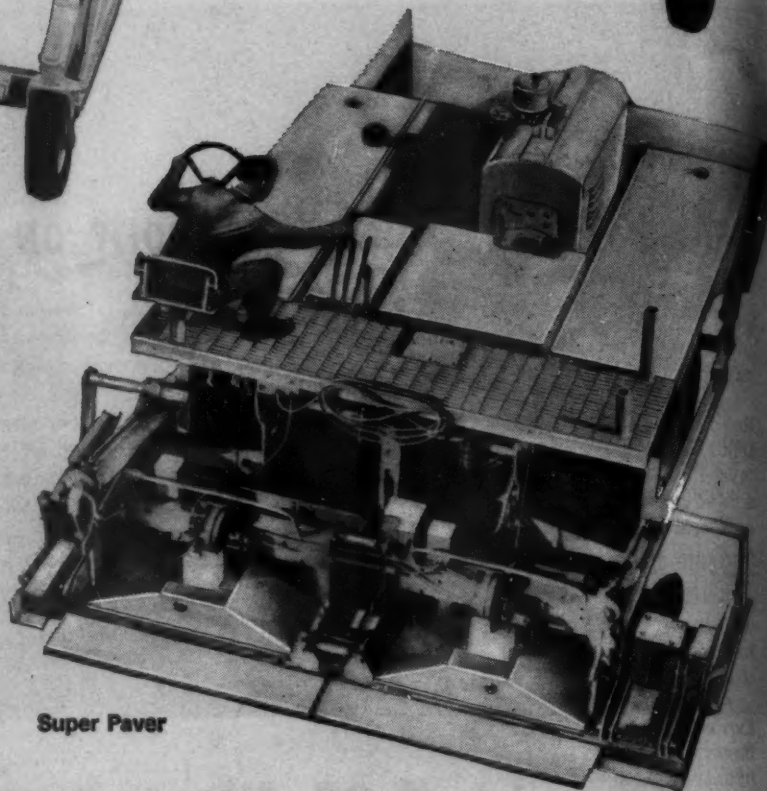
Super Paver—Automatic, air-electric fingertip controls, 12-ton hopper with hydraulic folding wings. Independent control of left and right conveyors interlocked with control of augers. Automatic control of material level ahead of augers. One piece screed in 10' width with extensions to 19'. Hydraulically driven tamper. Full hydraulic wheel steering. Eight paving speeds

from 16 f.p.m. to 117 f.p.m. Four forward and reverse travel speeds from 6 to 11 m.p.h.

Drive wheels equipped with 16:00 x 25 low-pressure earth mover tires. Full power brakes. Gasoline or Diesel power plant. Option: revolutionary new grade control for averaging out grade imperfections, determining grade from guide devices, adaptation to previously cut grade variations and matching previously laid mat.



Base Paver Attachment



Super Paver

Suburban Paver—Automatic control, 4-ton hopper, hydraulic folding wings. Right and left conveyors synchronized with augers. One piece screed with extensions to 12'. Full hydraulic wheel steering. Five paving speeds from 10 to 127 f.p.m. Travel speed 8.6 m.p.h. New hydroflated 10:00 x 20, 12-ply tires, and locking differential. Option: new grade control for averaging out

THE NEW LOOK IN BITUMINOUS PAVING:

MORE AUTOMATIC,

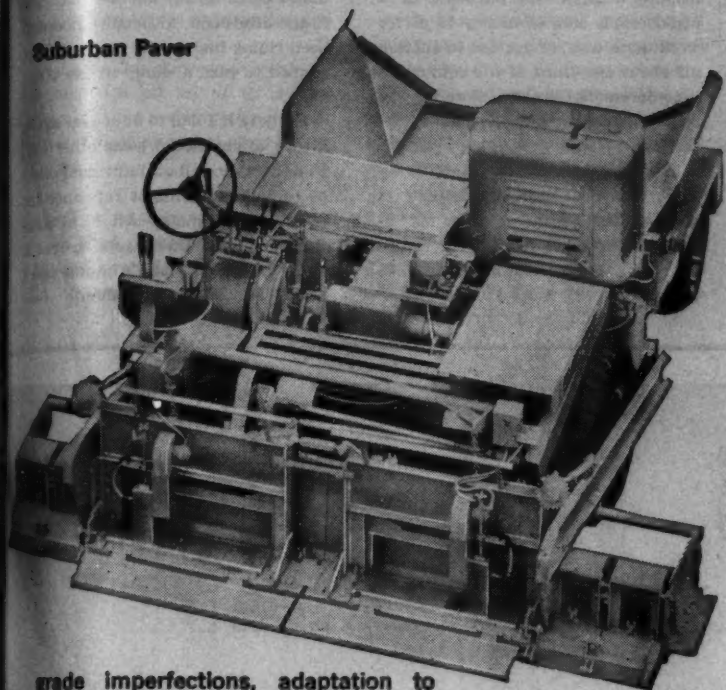
Here's the bituminous paving line designed to give you top quality, fully automatic production from base course to final binder.

Check the automatic features, the capacity and versatility of these new and improved Blaw-Knox machines. They'll help you bid closer, work tighter

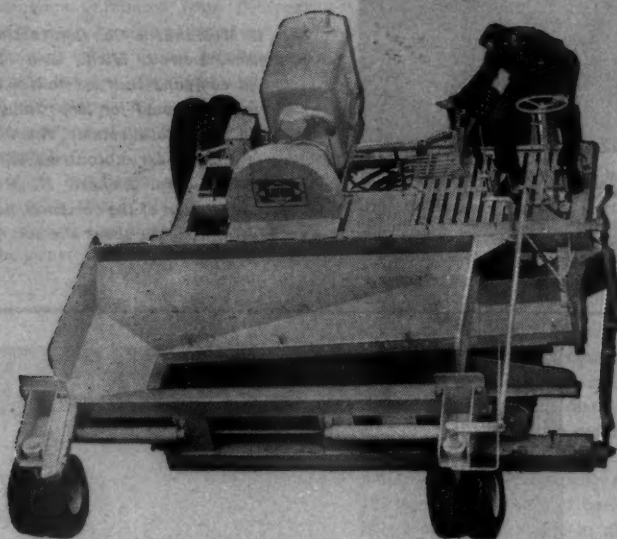
and make more money starting right now.

Your Blaw-Knox distributor has all the information. He'll be glad to help you get started on the way to bigger paving profits. Blaw-Knox Company • Construction Equipment Division • Mattoon, Illinois.

Suburban Paver



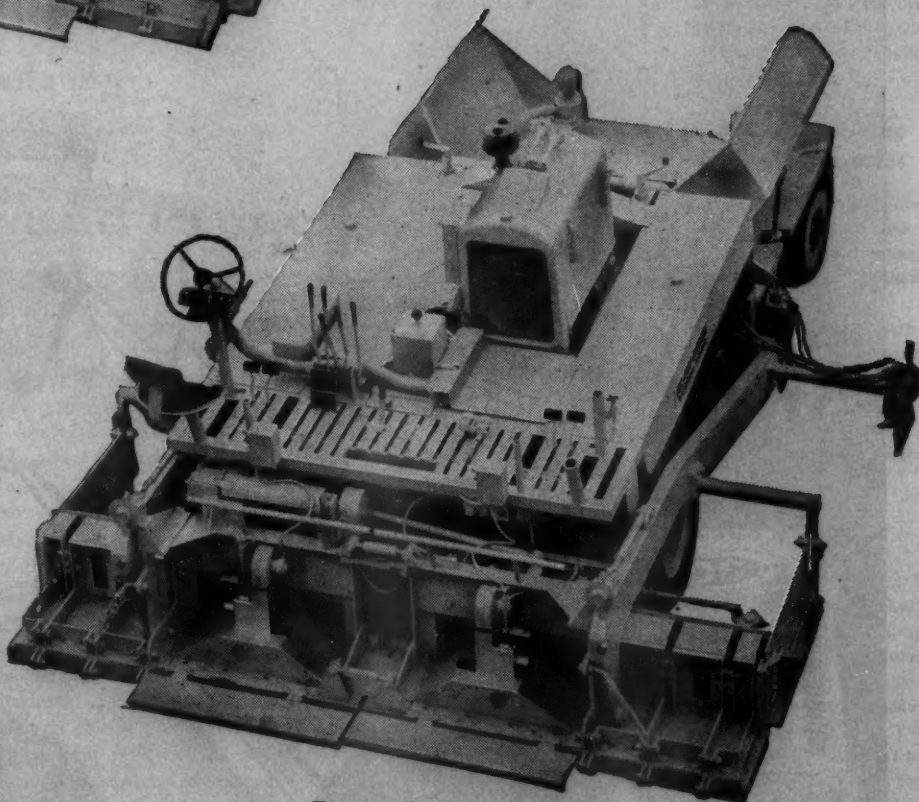
Road Widener



grade imperfections, adaptation to previously cut grade variations, and matching previously laid mat.

Road Widener—Versatile, one-man unit spreads any kind of aggregate, lays all types of bituminous mixes, spreads and finishes concrete. Spreads aggregate and bituminous materials in 2' to 10' widths, spreads and finishes concrete in 2' to 6' widths. 15' slip form attachment for concrete widening. Strike-off gate assemblies for each type material used. Spud vibrators for low slump concrete.

Express Paver—Automatic air-electric fingertip controls, 10-ton hopper with hydraulic folding wings. Independent control of left and right feed conveyors interlocked with control of augers. One piece screed design with extensions to 16'. Full hydraulic wheel steering. Eight paving speeds from 10 to 62 f.p.m. Travel speed 7 m.p.h. New hydraulically inflated 10:00 x 20, 12-ply tires. Gasoline or Diesel power plant. Option: new grade control for averaging out grade imperfections, determining grade from guide devices, adaptation to previously cut grade variations and matching previously laid mat.



Express Paver

VERSATILE, RUGGED THAN EVER BEFORE!

BLAW-KNOX

Construction Equipment

For more facts, use Request Card at page 18 and circle No. 280



Richard H. McManus, president, R. H. McManus & Co., Detroit.

"We needed the cash more than the equipment."

(Continued from page 43)

with a good reputation sells the equipment, the auction will be well attended, and the prices will reflect the true market value.

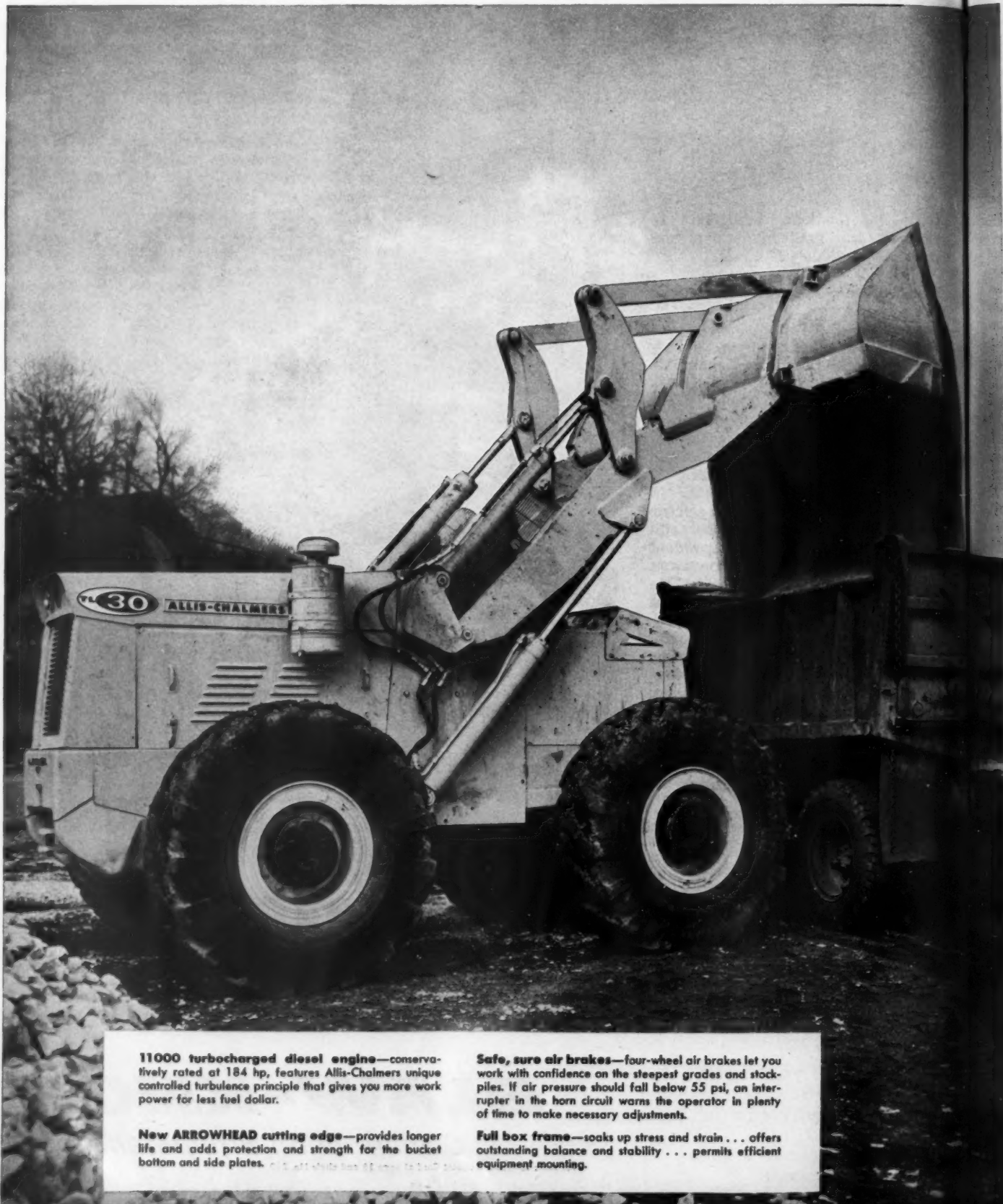
R. H. McManus & Co., Contracting Engineers, Detroit, Mich., is a 22-year-old company that specializes in underground piping for large industrial plants. Its total volume, much of which is done under subcontract, runs about \$3 million. Richard H. McManus, president of the company, has some afterthoughts about the sale of its equipment.

We had a special problem. As a subcontractor, we were caught in the middle of a legal dispute between an owner and a general contractor. The dispute delayed the payment of a considerable sum of money to us for work done, and we decided to auction off about one-third of the equipment—compressors, cranes, dozers, and other items—to meet current expenses.

The auction was held in conjunction with the larger auction of another Detroit contractor, Julius Forath & Son Co. I figured our equipment was worth about \$300,000. I expected \$160,000. I got \$100,000.

Though there are advantages to having a joint auction, I didn't seem to benefit from them. The equipment was on the tail end of the line and didn't come up for auction until late in the afternoon. Although prices had been riding high in the morning, they seemed to take a slump in the afternoon.

I believe if I had to do it over again, I'd try to get money some other way. I might try to sell off individual pieces of equipment. I might refinance the equipment. I might sell it to some individual and then agree to rent it back. He would make a profit, and I could still use the equipment.



11000 turbocharged diesel engine—conservatively rated at 184 hp, features Allis-Chalmers unique controlled turbulence principle that gives you more work power for less fuel dollar.

New ARROWHEAD cutting edge—provides longer life and adds protection and strength for the bucket bottom and side plates.

Safe, sure air brakes—four-wheel air brakes let you work with confidence on the steepest grades and stockpiles. If air pressure should fall below 55 psi, an interrupter in the horn circuit warns the operator in plenty of time to make necessary adjustments.

Full box frame—soaks up stress and strain... offers outstanding balance and stability... permits efficient equipment mounting.

Contractor "Z" from the Midwest is a medium-sized road-building firm that has been in business for fifty years. Its main line of work is concrete and asphalt paving. A subsidiary company does bridge construction and grading.

Last year, this discouraged contractor auctioned off all of its paving equipment, and reduced the scale of its bridge building and grading operation. Why?

We're an established company, but we got tired of fighting the system. Although we had a sound organization, the company has been losing

money for the past three years and fighting a losing battle against forces over which we have practically no control.

Contractors, equipped to do more work than was available, were forcing bid prices down. Wages and material costs were rising. Equipment companies were putting irresponsible contractors in business. The tax structure was unfair to the owners of large equipment fleets.

There's no point in staying in business if you can't make money. If other firms are wise, they'll quit bidding jobs for nothing.

THE END

Free service certificate offered on B & D hammers

■ Black & Decker Mfg. Co. Towson, Md., is offering a free service certificate with all B & D portable electric hammers purchased from February 26 through June 30 of this year. The company offers, in the certificate, to repair the hammer "free and clear of any charge for parts or labor—for a period of one year from date of purchase."

Each certificate will register the Black & Decker hammer it covers, as well as the name and address of the owner. The form covers mechani-

cal or electrical failure during normal use and operation. Exceptions include mutilation, accidental damage, and "unauthorized" repairs. Certificates will be issued by B & D distributors, and repairs covered by the certificate will be made at any of the company's factory service branches throughout the United States.

Calweld purchases Badger Tunnel

■ Calweld, Inc., Los Angeles, Calif., manufacturer of vertical earth-drilling equipment, has purchased the Badger Tunnel Co., a producer of horizontal boring and tunneling machines.

The new Calweld line will include machines with single rotary cutting heads to bore horizontal holes from 12 inches to 4 feet in diameter and tunnels up to 12 feet in diameter.

The Los Angeles firm will also manufacture machines with multiple cutting heads capable of boring tunnels more than 12 feet in diameter, and will build special units designed to meet customer specifications.

Lawrence L. Morris, president of the Badger Tunnel Co., will serve as consulting and design engineer on the new product line.

U. S. Concrete Pipe appoints 2 in sales

■ The United States Concrete Pipe Co., Cleveland, Ohio, has appointed J. Donald Anderson manager of sales promotion and H. M. Saalfeld general sales manager.

Anderson has been with the company since 1947, and Saalfeld since March of last year. The firm, a subsidiary of Pittsburgh Coke & Chemical Co., produces concrete and vitrified clay pipe in the eastern part of the country.

Ebasco names

■ Ebasco Services, Inc., New York, N. Y., has appointed Larry J. Aubrecht director of western regional operations for the firm's Management Consulting Division. He succeeds H. K. Breckenridge, who has been assigned to New York.

Aubrecht will direct the division's activities in California, Nevada, Arizona, and Hawaii from the San Francisco office. He was formerly head of the consulting staff in that office.

Marlow appointment

■ K. R. Lucas has been named to the post of manager of inside sales for Marlow Pumps, division of Bell & Gossett Co., Midland Park, N. J.

Lucas has been with Marlow Pumps for six years, serving in the cost section and later in sales.

Duff-Norton news

■ John S. Ray, Jr., has been appointed a sales representative for Duff-Norton Co., Pittsburgh, Pa. He will handle the sales of jacks and hoists in southern Illinois, Missouri, and Kansas.

NEW TL-30

184 hp
10,500-lb carry capacity
2½- to 6-cu-yd buckets
Weight: 28,400 lb

Best power and capacity in its size range

The new Allis-Chalmers TL-30 will give you more production than any other loader in this class. Its modern 11000 turbocharged diesel delivers 184 hp . . . up to 13 percent more power than others its size. This high-power output is delivered by a combustion system that has established itself as the most efficient in the industry. Proved in other Allis-Chalmers engines, this controlled turbulence, open combustion chamber design, gives you thorough mixing of air and fuel for complete, fast and even combustion . . . high fuel economy.

When it comes to carry capacity, the new TL-30 sets the pace in the industry. It carries up to 10,500 lb . . . a big 16-percent bonus over other loaders in this size range. This extra capacity lets you increase material flow . . . reduce handling costs on every shift.

The new TL-30 also features the same exclusive design and construction advantages in other Allis-Chalmers tractor loaders. Single-lever control; high dumping clearance and long reach; pin-connected axles; 5-way hydraulic filtering protection; safe dump cylinder location and added loader stability are some of the reasons why Allis-Chalmers tractor loaders have received tremendous acceptance by contractors, road builders and public officials around the country . . . in fact, around the world.

Before you decide on your next loader, make sure you get the complete story on the new TL-30, plus information on the other five tractor loader models—from 77 to 130 hp . . . 3,600 to 9,000-lb carry capacities. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.



move ahead with

ALLIS-CHALMERS

... power for a growing world

For more facts, use Request Card at page 18 and circle No. 28



Now's the time to check cooling systems

Heavy winter driving is rough on vehicles, and neglect can cost fleet owners plenty. The end of winter is the right time for a complete check, and cooling-system maintenance should be included.

The cooling system is more than just a tank of liquid coolant. It is a carefully engineered system of narrow thin-walled tubes, rubber hoses,

a water pump, thermostat, and the water jacket itself. Damage to any one of these components can mean breakdown and costly repair bills.

When your vehicle is saddled with a rusty or dirty cooling system, engine heat cannot be removed fast enough and engine temperature rises beyond the range required for maximum operating efficiency. This can happen

in a number of ways. If there is insufficient coolant in the system, the heat, unable to escape, will build up rapidly. Corrosion and rust particles may clog narrow radiator ducts and slow up circulation. Rust may form an insulating blanket, keeping engine heat from being picked up by the coolant.

A temperature gage may not show that your engine is overheating, but somewhere along the line an inadequately maintained cooling system takes its toll out of your pocket. Engines may begin knocking, or lubrication may be impaired and your vehicle may begin to eat oil. Abnormally high temperatures can burn out valves; damage gaskets, pistons, and

rings; and even cause bearing failures.

You can save down time and speed up maintenance jobs on your rigs by grouping six or eight vehicles together for draining and servicing. If your serviceman will place the vehicles in two rows facing each other, he can perform the following 8-step maintenance program with a minimum of time and effort.

1. Drain worn-out anti-freeze. Even ethylene-glycol anti-freeze, with its high boiling point, loses the protection of its rust and corrosion inhibitors after a winter's use.

2. Flush the cooling system with plain water. If corrosion, scale, or grease are noted, use a chemical cleaner. Back-flush the radiator and engine block with water and compressed air if there are signs of rust in the radiator tubes.

3. Check thermostat for operation at proper temperatures.

4. Replace weak or worn hoses. Tighten hose clamps securely and replace broken ones.

5. Examine fan belts and other drive belts for signs of wear and check them for proper tension.

6. Make sure the radiator pressure cap is free of dust or dirt, and that the rubber gasket and filler neck seal are in good condition. Remove all obstructions from radiator air passages.

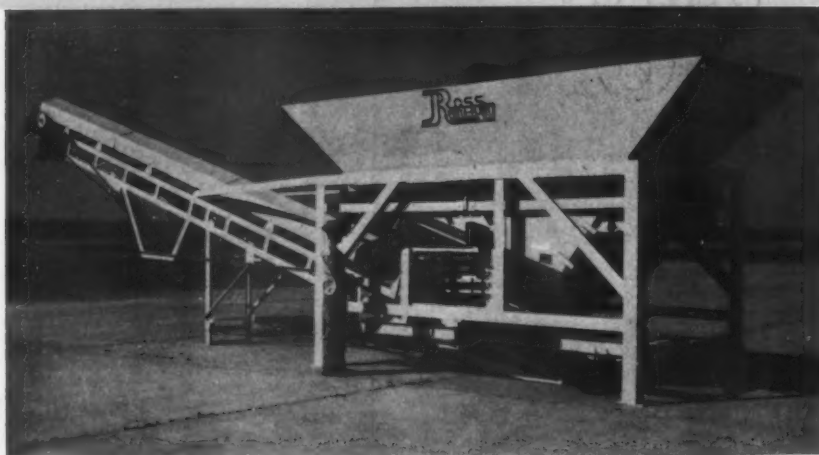
7. Refill the cooling system with fresh water and add a good rust inhibitor.

8. Run the engine to adjust coolant level and then check thoroughly for leaks at radiator, hoses, water pump, and cylinder-head gaskets.

This program will help keep your rigs out of the shop where they cost you money, and on the road where they belong.

THE END

NEW LOW PROFILE



THE NEWEST
CONCEPT IN
PORTABLE
BATCH PLANTS

NO WEIGH
BATCH BIN

30-TON OVERHEAD
STORAGE

A totally new design... the new answer to the old problem of higher production at lower cost. The All New ROSS PORTABLE DECUMULATIVE BATCH PLANT makes it possible to weigh out several concrete batches of various sizes without recharging the 30-ton overhead bin.

A front-end loader operation that can easily produce 60 yards an hour.

ONLY 11 FEET HIGH!

ANOTHER EXAMPLE OF
ROSS LEADERSHIP!

ROSS PORTA-PLANT

BOX 446

PHONE MJ-4354

BROWNWOOD, TEXAS

For more facts, use Request Card at page 18 and circle No. 282

SPEED SENSITIVE SWITCHES

With 1, 2, 3, 4, 5 or 6 adjustable switches in the same size container illustrated.

Any drive mountings listed which would best fit the installation can be used with any of our speed switches. The GS model will accommodate a coupling, gear or a pulley for other means of driving.

Normal speed can be as high as 7000 RPM. Low speed setting can be as low as 200 RPM if the top speed is below 2500 RPM. A governor that will make contact at 20 RPM is available.

A variety of caps and terminals are available. Request Bulletin 604.

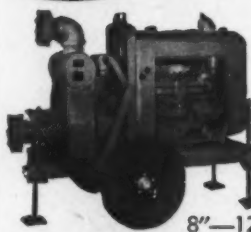
**SYNCHRO-START
PRODUCTS, INC.**
8151 N. RIDGEWAY AVE.
SKOKIE, ILLINOIS



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RICE RICE PUMPS

A Complete
Line for
CONTRACTORS

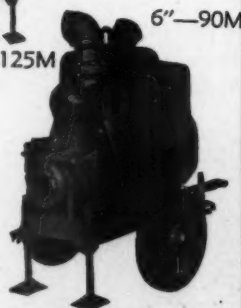


CENTRIFUGALS
All Standard AGC
Sizes 1 1/2" to 10"

Air and water cooled
power—Modern Design—
Precision built.

DIAPHRAGMS
2" 3" 4" SINGLES
BIG 4" DOUBLE

Single and double styles—
48 to 1 reduction—gearing
fully enclosed and operates
in oil.



MASONRY CUTTERS
12 and 30 Ton Sizes

RICE Pump & Machine Co.

BELGIUM, WISCONSIN

FACTORY BRANCH — W. 41 Ridgewood Ave., Paramus, N. J.

For more facts, use Request Card at page 18 and circle No. 284

Second building rides N. Y. Central tracks

While one new building is being constructed over the operating tracks of the New York Central railroad at Grand Central Terminal, New York City, work has begun on a second building, the new Bankers Trust Building, just north of it.

This second building, 30 stories high, will be located at the point where the main tracks begin to branch out to various upper and lower-level platforms in the terminal. The wider spread of the tracks makes an island out of the building site, and each of the tracks serves several separate lines so that closing down even one of them affects the operation of a larger number.

For this reason, foundation work between the tracks 55 feet below ground level was started on January 31, well in advance of completion of demolition above ground so that the footings and grillages for the new steel columns would be ready to be set when the site was cleared.

Diesel Construction Co., Inc., and David Rose & Associates, Inc., New York City, are the contractors.

CONTRACTORS AND ENGINEERS

HRB analyzes state contract procedures

The Highway Research Board has published Special Report 57, "Highway Contracts," a study undertaken by the Highway Laws Committee legal staff.

The 144-page booklet covers the entire legal range of contracts for highway construction, including contracting authority, prequalification of contractors, anti-fraud provisions, competitive bidding requirements, bonding procedures, statutory regulation of labor and wages, preference for local products and labor, and satisfactory performance.

Special consideration is given to such areas as: authority of the state or its political subdivisions to enter public contracts; authority of the board, commission, or agency entering such an agreement; statutory requirements which must be met before the contract is awarded; labor standards and product and labor preferences to be complied with; and controls and safeguards provided to insure satisfactory performances.

The booklet may be obtained for \$4 a copy from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C.

Reference book for engineers

"Dictionary of Mechanical Engineering," by Alfred Del Vecchio, has been published by the Philosophical Library, Inc.

The book, 346 pages in length, is intended for the practicing engineer, and for students and teachers engaged in the fields of architecture, automatic controls, engineering mechanics, fuels and combustion, and power plants. It also contains some definitions in the related fields of electricity, heat treatment of metals, mathematics, and welding.

The dictionary may be obtained for \$6 a copy from The Philosophical Library, Inc., 15 E. 40th St., New York, N. Y.

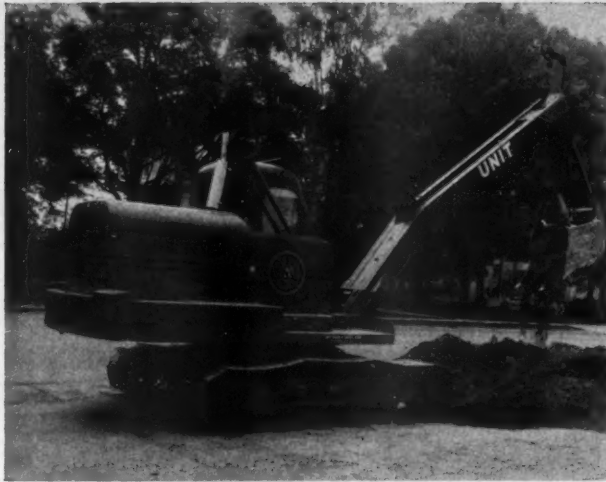
Book on advanced design of steel structures

"Advanced Design in Structural Steel," by John E. Lothers, has been published by Prentice-Hall, Inc.

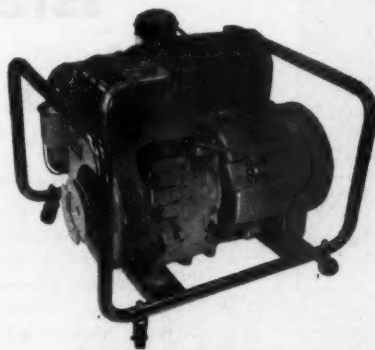
The 583-page book treats a variety of types of statically indeterminate structures, each with an example, problem, and illustrations. Recent data is included on continuous and rigid-frame steel buildings and statically indeterminate trusses, and appraisals are given of wind and earthquake stresses, floor and stair design, and steel-frame connections for multistory buildings. Light-gage structural-steel sections are discussed, and such subjects as torsional buckling, allowable web shear, and tension members are covered.

Bibliographies with sources for methods of advanced analysis are included.

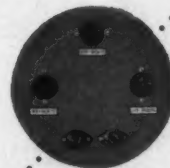
The book may be obtained for \$15 a copy from Prentice-Hall, Inc., Englewood Cliffs, N. J.



EXCAVATION WORK on a sewer-extension job along Route 20 in Conneaut, Ohio, is being done by this Unit Model 617 trench hoe owned by the Reliable Excavating Co., North Kingsville, Ohio. The rig cut time in half for digging out basements and sewer lines and enabled Reliable to average 2,000 feet a day on a pipeline job.



FOR INSTANT POWER
THAT'S ALWAYS
ON THE JOB...



PLUG INTO A

ZEUS

PORTABLE
ELECTRIC
GENERATOR

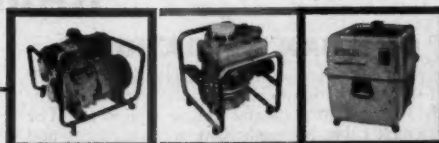


Here's the portable power plant that stays on the job . . . generates 3000 watts of dependable AC electricity for power tools, floodlights, pumps, motors . . . *anyplace, anytime!* Maintenance? Who needs it with the Zeus! The exclusive Borg-Warner Permanent Magnet Alternator connects directly to the engine. There are no belts to replace, no brushes or commutator to wear, no slip rings, exciter or voltage regulator to replace! Powered by a heavy-duty gas engine, the GW-300 Zeus shown above delivers continuous full voltage for hours without overheating . . . features three fused outlets (115v & 230v). It is available with optional frame, casters, fuel tank and other accessories.



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3000-PC

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Borg-Warner, Pesco Products Div.
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Please send me complete information about the Zeus Portable Electric Generators checked above.

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COMPANY.....
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EXPORT SALES: Borg-Warner International Corp., 36 South Wabash Ave., Chicago 3, Ill.

For more facts, use coupon or Request Card at page 18 and circle No. 286

Five tractors are in use to push the material to the loader. This D9, also used to rip, has an Ateco ripper with Esco teeth having 20-inch points. The teeth proved very satisfactory in the abrasive material.



The interlocking qualities of blast-furnace slag that make it good for base work also made ripping necessary when Morrison-Knudsen began using a steel mill's stockpile for a section of Utah Interstate. A D9 is handling the job here.



Blast-furnace slag for expressway base

Contractors and Engineers staff article

A mountain of blast-furnace slag is being spread in a ribbon across an area of unstable subsoils to build a section of Interstate I-15 between Orem and American Fork, Utah. Morrison-Knudsen Co., Inc., Boise, Idaho, holds the \$1.4 million general contract with the Utah State Road Commission for the grading, drainage, and for two bridges on the 4.94-mile section of 6-lane expressway.

While the use of blast-furnace slag in highways is not unique, this was the first highway application of the waste material from the Utah plant of the Columbia-Geneva Steel Co., a subsidiary of U. S. Steel. In other steel-producing areas, slag has been used as concrete aggregate and as a

raw material in the manufacture of cement, as well as in highway grading.

Although the mountainous pile of slag at the Columbia-Geneva mill looked like a ready-made stockpile of excellent free-draining material for the roadway base, the loading and placing of 1.5 million cubic yards of the slag presented a few problems to the contractor.

Stockpile requires ripping

First, the irregular-shaped particles of slag have very powerful interlocking and bridging qualities. This makes the slag perfect for building a stable, free-draining roadway base across the unstable subsoils of the old lake-bottom area.

But these same qualities make the

The
BIG LIFT
you need to
move faster
in 1961!



Heavy Duty Hydraulic RAMP HOIST with WINCH

ONE MAN OPERATION

The complete operation of the SCHWARTZ RAMP HOIST is done hydraulically so only one man is required to load, transport, and unload equipment. The heavy winch cable is attached to the equipment and the powerful winch pulls the load up the inclined ramp. When in place, the ramp is hydraulically lowered into place and you're ready to roll at highway speeds.

- Models to fit factory tandems or locally installed tandems, 120" cab to tandem center or longer.

You'll save valuable time and labor by moving powered equipment, heavy machinery, and tools faster and easier with a SCHWARTZ RAMP HOIST. This new, heavy duty model is designed specifically for contractors, haulers, and industrial firms to simplify the transporting of equipment and eliminate the need for cumbersome, heavy trailers for medium weight equipment.

For complete information, write Dept. 13
SCHWARTZ MANUFACTURING COMPANY
LESTER PRAIRIE • MINNESOTA

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DUDGEON HYDRAULIC JACKS

SALES
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CAPACITY
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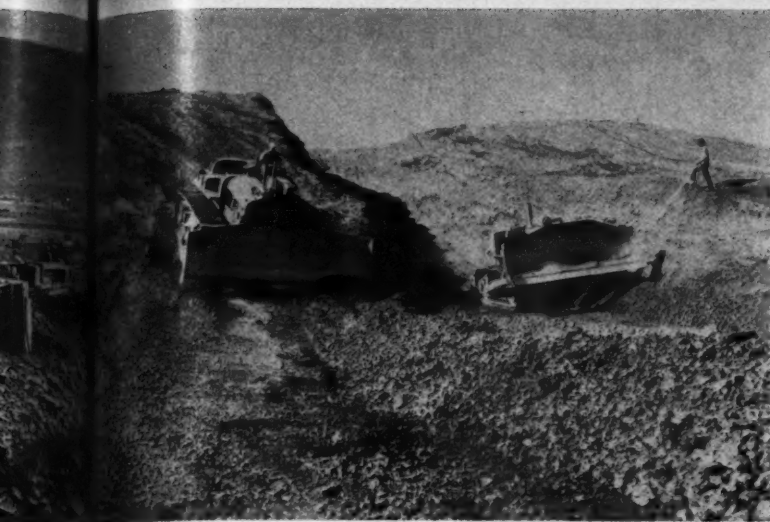
DESIGNERS and
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CONTRACTORS AND ENGINEERS



A 60-inch Wescon conveyor-loader fills a Utility bottom-dump pulled by a Mack truck. The 16-yard trailers were side-boarded to carry 22 yards of slag. Tramp iron in the slag is extracted by a magnet above the discharge end of the loader and carried by chute to the Ford truck, extreme right.



slag
ase

With a D9 ripping and a Euclid TC-12 tractor-dumper pushing slag to the loader, a workman hoses down the slag to control dust and make the material easier to handle. Abrasiveness of the slag caused plenty of wear on points and blades.

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huge stockpile practically impervious to bulldozer blades. The slag had to be thoroughly ripped before it could be dozed or loaded, and the highly abrasive nature of the slag caused rapid wear of ripper teeth and dozer blades.

Another problem was the tramp iron in the slag pile. Small pieces carried over with the slag would ruin tires of the earthmoving machines. Larger pieces, like the big "buttons" from the bottom of the slag buckets, were salvaged for the steel company. Occasionally, one of these heavy chunks got into the loader, and this always spelled trouble.

Getting the initial pad of slag on the right-of-way as fast as a dragline removed the topsoil required

(Continued on next page)



A big MRS scraper picks up a load of slag. These rigs, rated at 40 yards, were also side-boarded to take 44-yard payloads. They are filled in slightly more than a minute.

492 Ft. Culvert

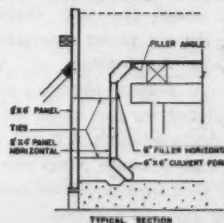


Symons Prefab Forms and Engineering Service

... Reduced by About 1/2
Material Needed for Job

How to extend an existing culvert 492 feet to allow Mercer Slough to pass under the new Seattle by-pass of U.S. Highway 99. Also, how to finish it before rains swell the slough, or creek, to over-flowing. That was the problem faced by A. R. Anderson Construction Company, Seattle.

Anderson used Symons Culvert Forms with Symons Steel-Ply Panels. Symons engineering and their Seattle man, Hal Caffee, designed a form lay-



out, so that inside wall and fillet forms could be stripped out without disturbing the shoring for the slab roof. This not only saved time but reduced by almost one-half, the material needed for the job.

The pay-off! It is estimated that it took under 200 man hours to set up and pour the job and under 60 man hours to strip the forms.

For the complete story on the *Seattle Culvert Job*, send in request on your company letterhead. Symons Steel-Ply Forms rented with purchase option.



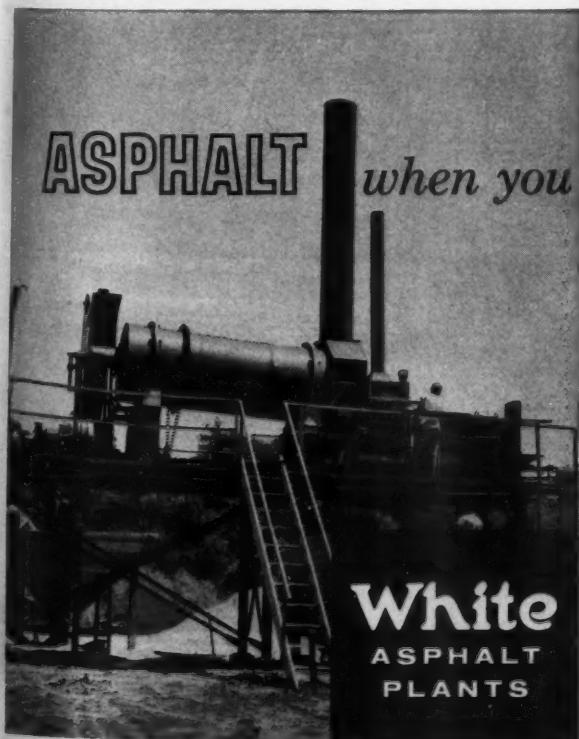
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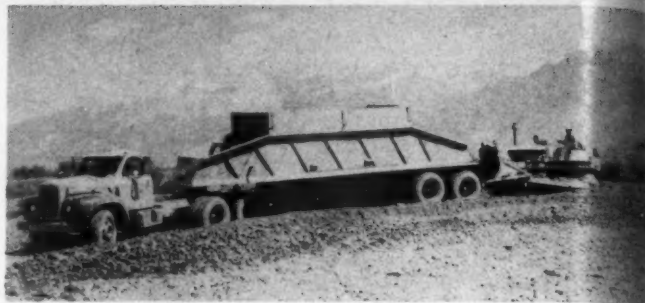
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APRIL, 1961



Mack-Utility combinations dump slag as soon as possible after topsoil removal, for there is a tendency for water to seep into the excavation making it almost impossible for trucks to operate. This one is getting a push.

Out on the grade, which crosses a wide expanse of old lake bottom, a crane scoops up soft topsoil with a 1-yard bucket and loads it into a DW15 scraper that hauls to waste areas.



the discharge end of the conveyor-loader separated the tramp iron from the slag. The big oil-cooled magnet, measuring 60 x 48 x 30 inches, was supplied by the Magnetic Engineering & Mfg. Co., Clifton, N. J. Located just over the discharge end of the

conveyor, it picked the iron off the belt and carried it over to a chute that led to the box of a dump truck parked beside the loader. This iron was salvaged for resale as scrap iron. The distance from the slag pile to the closest point of the roadway was

(Continued from preceding page)

careful coordination. The fill had to be carried ahead as fast as possible; there had to be room for the fast-moving haul rigs to dump quickly; and the several types of haul units had to be kept on footing that would keep them from getting stuck.

Use heavy rippers

To rip the slag, M-K used two Caterpillar D9 tractors equipped with Ateco rippers fitted with Esco teeth. These tractors also carried rock dozers, so that they could doze as well as rip. The Esco teeth, fitted with 20-inch removable points, proved highly resistant to the abrasion of the slag and gave very satisfactory service. The portions of the dozers exposed to the abrasion had to be faced with a hardsurfacing to control wear.

In addition to the two ripping tractors, at least three other tractor-dozers worked on the slag pile. One of these was a Euclid TC-12, one was a D9 fitted with a U-dozer, and the other was a D8. All of these rigs pushed the slag to the feeder of a Wescon 60-inch conveyor-loader that loaded the haul units.

To control dust on the slag pile and to make the slag easier to handle, the contractor maintained a continuous application of water sprays. A 6-inch electric-powered pump picked up the water from a nearby drainage ditch. A 2-inch multistage high-pressure pump was also used to feed pipe and hose lines on the slag pile. In addition to the 8 Rainmaker sprayers, several workmen applied water with hand-held nozzles in areas where the dozers were working, so that the machines and their operators were not wetted down, too.

Magnet separates iron

The big Wescon loader assembly included an apron feeder and adjustable gate, all powered by electricity. When the loader was in operation, the belt was kept in continuous motion while the flow of slag was controlled by the feeder and gates. The rig loaded the 22-yard truck-trailers in well under a minute, and it took only slightly longer to put 44 cubic yards into the largest scrapers.

A powerful self-cleaning magnet at

THE NEWEST REASON TO MAKE YOUR NEXT 2-TONNER A FORD

ALL-NEW FORD BIG SIX

262^{CU.} IN. TRUCK ENGINE



FORD DIVISION, Ford Motor Company,

New two-ton toughness! New stronger frame...huskier cab...rugged truck suspension that can give twice the front tire life of other types!

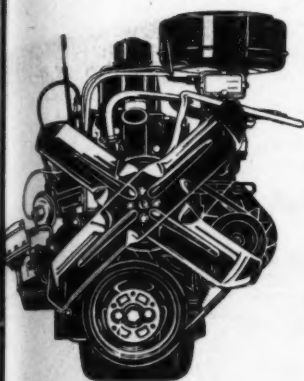


The big MRS scrapers, weighing about 130 tons loaded, dump on top of the first 2-foot pad of slag that has been placed over the soft subgrade. Altogether, 1.5 million yards of the slag is used on a section about 5 miles long.

about a mile. This meant that hauls ranged from one to six miles. Since the slag was not exceptionally heavy—it weighed about 2,300 pounds per cubic yard—haul units were side-boarded for maximum loads. In the hauling spread were four

MRS Model 250 40-yard tractor-scraper rigs. When loaded under the belt, these rigs regularly hauled 44 pay yards. At times when the loader was not in operation, they picked up their own loads with the aid of a D9 pusher.

A considerable part of the material was moved by nine Mack B-63 trucks pulling Utility bottom-dump trailers. These trailers, usually rated at 16 yards, were side-boarded to carry 23-yard loads. A third squad of haul units included three Cat DW20 scrapers. These units also worked on the removal of unsuitable material from the right-of-way, but were frequently called on to lay down the first pad of slag over the soft subsoil. They could get in and unload on a soft subgrade where any of the other units would bog down.



Now, the rugged simplicity of a big 262-cubic-inch Six is combined with the dependability of heavy-duty, *exclusive-truck* engine design. In a grueling 40,000-mile test of reliability, Ford's new Big Six was pitted against its principal competitor in the 2-ton field. Result: Ford's new engine required far fewer service adjustments. This means less time in the shop . . . more time on the job.

The new Big Six is one of *four* engine choices in Ford two-tonners for '61—including America's most popular truck V-8's. See your Ford Dealer. He will be glad to help you select the best engine for your job.

SEVEN MORE REASONS

WHY IT'S GOOD BUSINESS TO DO BUSINESS WITH FORD!

You save from the start with Ford's traditionally low prices! And your savings continue with lower operating and maintenance costs. These facts are documented by certified test reports from America's foremost independent automotive research firm. Ask to see these reports. They're on file at your Ford Dealer's.

In addition to these actual dollar-and-cents savings, the following bonus benefits provide greater protection against those annoying problems that are often associated with truck ownership.

1. **Rigid quality controls** give you the strongest safeguard of truck quality ever. One tangible result of these new and uniformly high standards is Ford's liberal new warranty program. Other results: extended durability and performance, lower operating costs.

2. **12,000-mile warranty** (or 12 months) on all 1961 Ford Trucks of any size. Each part, except tires and tubes, is now warranted by your dealer against defects in material or workmanship for 12 months or 12,000 miles, whichever comes first. The warranty does not apply, of course, to normal maintenance service or to the replacement in normal maintenance of parts such as filters, spark plugs and ignition points.

3. **Exclusive 100,000-mile warranty** (or 24 months) on 401-, 477- and 534-cu. in. Super Duty V-8 engines. Each major engine part (including block, heads, crankshaft, valves, pistons, rings), when engine is used in normal service, is warranted by your dealer against

defects in material or workmanship for 100,000 miles or 24 months, whichever comes first. Warranty covers full cost of replacement parts . . . full labor costs for first year or 50,000 miles, sliding percentage scale thereafter.

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Dragline removes topsoil

In the vicinity of the one interchange on the job, the existing soil was excavated to provide a minimum 6-foot lift of slag. On the rest of the alignment, the topsoil was removed and a minimum depth of 4½ feet of slag was placed.

A Northwest Model 25 dragline with a 1-yard bucket excavated most of the unsuitable material, loading it into three Cat DW15 scrapers that hauled to waste areas. The DW20's also worked on this operation and did some self-loading of the topsoil.

As the topsoil was removed, there was a tendency for water to begin seeping into the excavation. This made it necessary to keep the fill operation as close as possible to the excavation.

In the softest areas, DW20's laid down the first pad of slag. Then the truck-trailers brought in successive lifts that were dozed out of 6-inch courses by a pair of D8 dozers. After 2 or 4 feet of slag had been placed, the big MRS scrapers, which weighed up to 130 tons, spread the succeeding courses. The heavy equipment operating over the roadway did not provide adequate compaction of the slag material, and the contractor had to use two D6's to pull two sets of three Essick VR-72 vibrating rollers on 18-inch lifts of slag throughout the placing operation.

In addition to the grading, the M-K contract included the installation of a large amount of perforated-pipe underdrains. These pipes, ranging from 6 to 18 inches in diameter, were laid primarily on the high side to intercept ground water and lead it to natural drainage channels.

Two short-span bridges were built over American Fork Creek—a longer one to carry the expressway and a shorter one for a service road. The structures for the one interchange within the limits of this contract will be built under a future contract after the approach fills have had time to settle and become stabilized.

Maintenance

Major repairs or overhauling of any of the job equipment was handled by M-K's Salt Lake City shops. Minor repairs were done right on the job site. A very important maintenance



Tramp iron and the sharp abrasive slag cause a lot of tire wear, making the General Tire Service truck an important rig in the maintenance spread. A good supply of new truck and scraper tires is always kept on hand for quick mounting.



With the help of a D9 push tractor, MRS scrapers pick up their own loads from around the edges of the big slag pile. These machines loaded themselves only when the conveyor-loader was shut down.

(Continued from preceding page)

item, the care of the tires, was done under contract by the Salt Lake City branch of the General Tire Co.

Two mobile lube rigs serviced the equipment right on the job during lunch hours, during the one-hour break between the two daily 9-hour shifts, and after the night shift, if necessary. These rigs were equipped with Lincoln lubricating equipment, Onan generators, and Ingersoll-Rand compressors. They used Texaco lubricants.

Fuel was dispensed to the tractors and stationary equipment from a fuel truck that was rented from Texaco but operated by the contractor. The haul rigs and other mobile equipment usually fueled directly from the 8,000-gallon diesel-fuel storage tank near the loading site.

Personnel

The M-K crew of some 130 employees was supervised by project manager Dean Straw. On his staff were office manager Mark Rosandick, project engineer Lonnie Herron, day superintendent Fred Huff, night superintendent Russell Culp, and master mechanic Ted Stoddard. A. Dzulak was in charge of one shift, Jim Fulbright served as concrete superintendent, and Vern Long was pipe foreman.

For the Utah Department of Highways, Jim West is district engineer. Thomas Law is resident engineer for the department. Also on the job were party chief Jack Thomas, transitman Virgil Mitchell, chief inspector Harold Louthier, and field inspector Carl Clegg. The chief construction engineer for the department is John B. Skewes. The director of highways is C. Taylor Burton. **THE END**

L. B. Foster promotes

■ New regional traffic manager of L. B. Foster Co., Pittsburgh, Pa., supplier of steel products, is Bern W. Parmeter.

Parmeter will be in charge of traffic operations for territories covered by the company's Houston, Lubbock, Chicago, and Los Angeles offices, as well as a new San Francisco branch. His headquarters will be located in Houston.

BPR report on zoning law as related to highways

■ A new publication dealing with zoning law as it relates to highways has been released by the Bureau of Public Roads, Washington, D. C.

The 81-page booklet consists of two articles. "Highway Transportation Criteria in Zoning Law" contains a comprehensive annotation of court decisions and statutory law dealing with the use of zoning powers to promote traffic and transportation objectives. It relates the extent and nature of judicial application of existing highway transportation criteria, and then suggests new criteria for consideration by the courts in handling zoning actions. A summary of pertinent state zoning enabling legislation and a number of suggested zoning ordinance provisions is included.

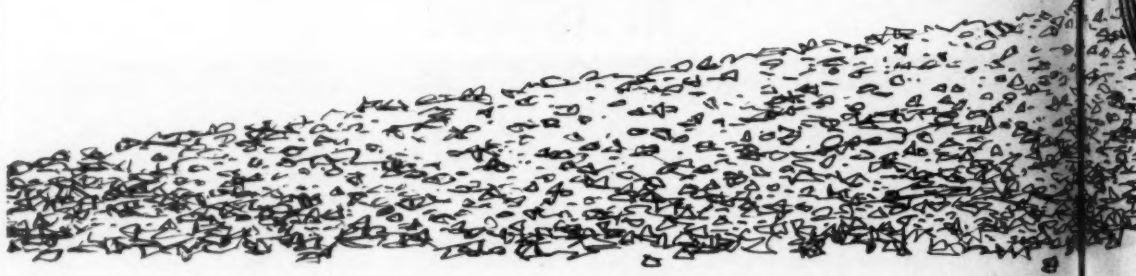
"Police Power and Planning Controls for Arterial Streets" suggests application of regulatory and zoning measures to traffic problems on urban arterial streets. A Washington, D. C., street is used as an example.

The booklet may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 35 cents a copy.

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SAFELY JUDY SCHWAN competes with a full-size plastic model of Gorman-Rupp's new submersible pump for the attention of G-R executives Jim Gorman, sales manager, and Gil Hiett, marketing vice president. The pump, but not necessarily Judy, is being shown at a series of regional sales presentations for distributor personnel in San Francisco, Kansas City, Dallas, New York, Chicago, and in Gorman-Rupp Co.'s home city—Cincinnati, Ohio.



Five engineers win ACI 1960 awards

■ The American Concrete Institute, Detroit, Mich., presented 1960 awards to five engineers at its 57th annual convention in St. Louis, Mo.

The Turner Medal was awarded to Stanton Walker "for his many contributions to the basic knowledge of concrete through published literature and active participation in the work of the technical committees of the Institute." Walker, an ACI past president, is director of engineering of both the National Sand and Gravel Association and the National Ready Mixed Concrete Association.

Anton Tedesco was presented with the Lindau Award for "his numerous and outstanding contributions to the development and use of long-span concrete structures as exemplified by the thin-shelled arch." Tedesco, who at the same time was elected to the ACI board of direction, is a vice president of Roberts & Schaefer Co., consulting engineers of New York and Chicago.

A. Allan Bates, vice president for research and development, Portland Cement Association, received the Kennedy Award for his efforts as chairman and member of the ACI building committee, which culminated in the Institute's headquarters building built in 1958.

The Wason Medal for Research was presented to Henry T. Toennies, assistant director of engineering for the National Concrete Masonry Association, for his paper, "Artificial Carbonation of Concrete Masonry Units," published in the ACI Journal for February, 1960.

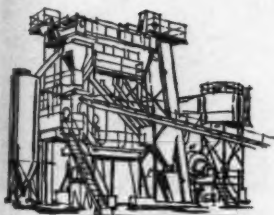
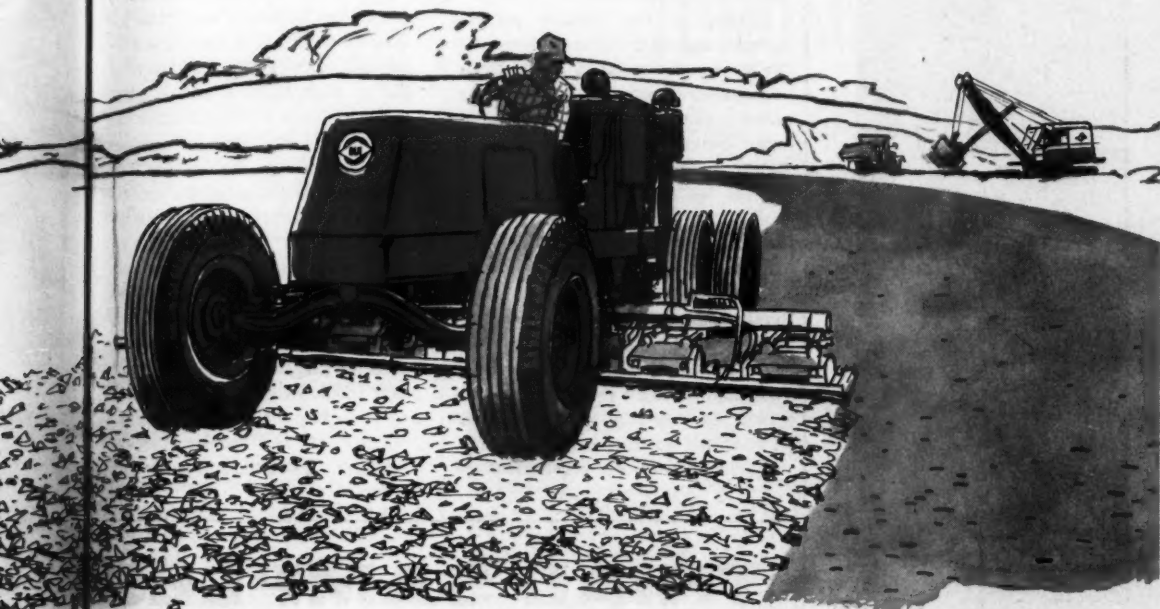
Robert A. Williamson was awarded the Wason Medal for Most Meritorious Paper for his "Performance and Design of Special Purpose Blast Resistant Structures," published in the May, 1960, Journal. Williamson is with the engineering firm of Holmes & Narver, Inc., Los Angeles.

Flintkote leases rights to Newfoundland gypsum

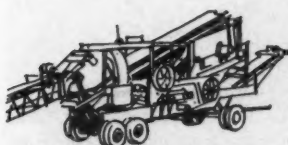
■ The Flintkote Co., New York, N. Y., has completed arrangements with the Canadian province of Newfoundland, under a 99-year renewable lease, for rights to an area comprising nearly 3,000 square miles of gypsum-producing properties.

The company will utilize the deposits to supply new gypsum-producing plants in the United States and Canada over an area extending from the Gulf of Mexico to the Great Lakes. The first plant is scheduled for immediate construction in the metropolitan New York area.

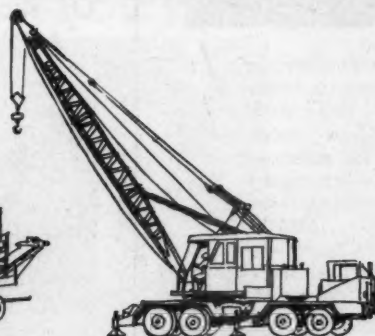
Flintkote will also acquire certain of the assets of the Atlantic Gypsum Co., Ltd. of Corner Brook, Newfoundland, including material and equipment to complete a 6-mile-long aerial conveyor from existing gypsum quarries at Flat Bay to a deep-water shipping point near St. Georges. Flintkote will manage the Atlantic Gypsum plant, with the right to purchase it outright. The company plans to start shipment this summer.



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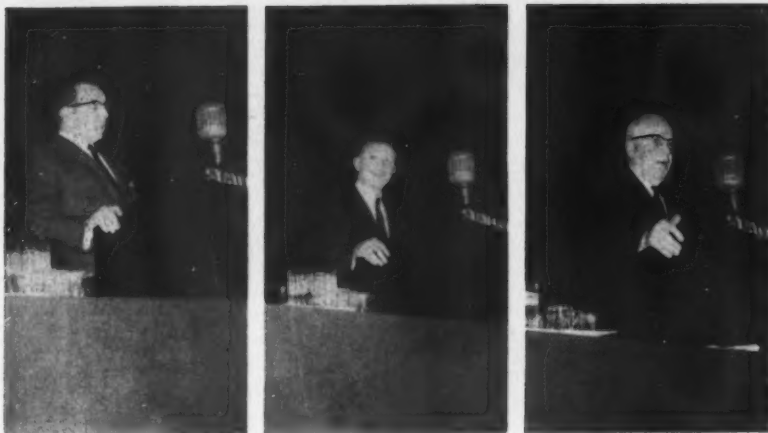
LIMA CRANES AND SHOVELS—Interchangeable front ends. Cranes to 140 tons—80 tons on rubber; shovels to 8 yd.

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AGC president M. Clare Miller; Massachusetts governor John Volpe, immediate past president of AGC; and Secretary of Commerce Luther Hodges take the podium to speak before the annual meeting of Associated General Contractors in Boston.

Hodges tells AGC

Secretary of Commerce points out potentials in highway, school, and urban-renewal work at contractors' convention

Contractors and Engineers staff article

The 42nd annual convention of the Associated General Contractors of America heard Secretary of Commerce Luther H. Hodges urge the construction industry to adopt new techniques that will increase on-site job productivity by both management and labor. For only in this way, he added, will the taxpayers' money yield the highest return.

Addressing the opening general session, Secretary Hodges pointed out to the contractor group the tremendous market potential in the years ahead, particularly in the fields of road building, school construction, and urban renewal. The yearly meeting of the association representing some 7,300 leading construction firms was held at the Statler-Hilton, Boston, Mass., February 27 to March 2.

Secretary Hodges stressed his administration's plans for expediting procurement and construction. "We have already accelerated our federal-aid highway fund payments for this fiscal year," he said, "and are urging the states to speed up contracts. Other departments of government are

working along the same lines."

Despite the many new school construction projects under way, the Secretary called attention to the growing classroom shortages. "It has been estimated that there are two million school children with inadequate space," he reported. "The crisis in secondary and college room space in particular is approaching an acute stage."

In stressing the need for urban renewal, the Secretary said, "Can you imagine the kinds of construction opportunities there would be if we really got to work to do a serious job of urban renewal in this country? Can you imagine the kinds of construction prospects we would have if we took full advantage of the opportunity for modernizing our vast industrial machine?"

As to the outlook for the construction industry, the cabinet member reported that analysts in the Department of Commerce estimate that by 1985 the physical output in construction should exceed 1959 record levels by 20 to 25 per cent. This indicates a volume of new construction approaching \$70 billion in current dol-

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CONTRACTORS AND ENGINEERS

AGC big construction market

At a highway session, AGC president Miller moderated a panel discussion from his position between Congressmen Gordon H. Scherer and George H. Fallon, left, and Federal Highway Administrator Rex Whitton and AASHO executive secretary A. E. Johnson, right.



lars. The Secretary also reported that the department is endeavoring to stimulate the participation of American construction firms in foreign work.

Volpe welcomes AGC

In his new role as governor of Massachusetts, John A. Volpe of Malden, Mass., immediate past president of AGC, greeted the delegates. To insure the continued good health of the construction industry, Gov. Volpe offered a 3-point plan to the convention. This plan included:

1. better relationship between general contractors and subcontractors;
2. wider adoption of a serious, comprehensive safety program by contractors;
3. improved public relations so that the public hears the good news about what contractors do and stand for, not just the unpleasant things.

The governor also urged contractors to run for public office. "One good way for each of us to make certain that our democratic form of government remains strong is to participate more fully in the actual conduct of government," he said. "The satisfaction you get from serving your fellow man will more than compensate for the loss in monetary return."

New officers

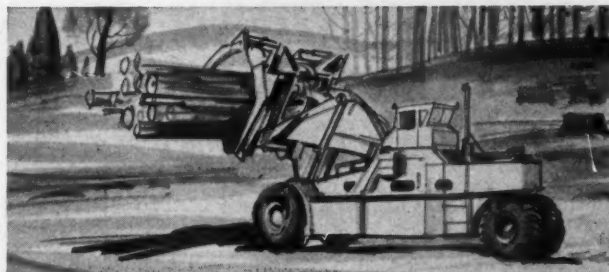
When Volpe relinquished the presidency of AGC in January to become the chief executive of Massachusetts, M. Clare Miller, president of the San Ore Construction Co., McPherson, Kans., succeeded to the top post in AGC. At this convention he began a full one-year term as AGC president. The new association vice president is Frank F. Burrows, president and general manager of Williams & Burrows, Inc., Belmont, Calif.

Highway panel

Highlight of a convention session on highway construction was a panel discussion of the topic "1961—Year of Decision for Highways." President Miller questioned the four panel participants: Rep. George H. Fallon (D., Md.), chairman of the House Subcommittee on Roads; Rep. Gordon H. Scherer (R., Ohio), ranking minority member of the House Subcommittee on Roads; Federal Highway Administrator Rex M. Whitton; and A. E. Johnson, executive secretary, American Road & Builders Builders Association.

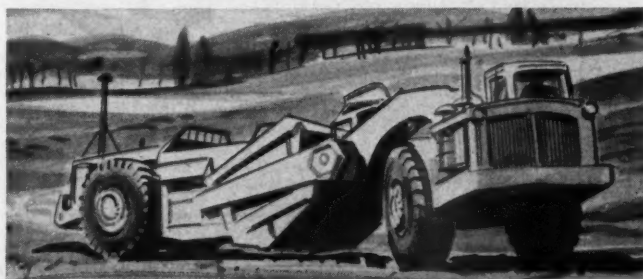
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ALLISON speeds big loads TORQMATICALLY



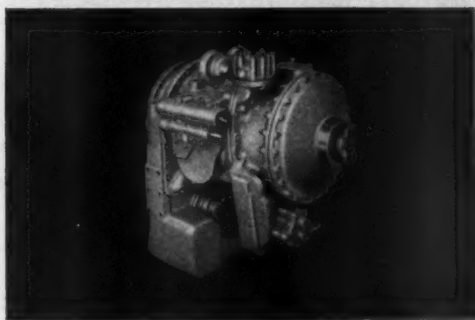
IN "LUMBER JACKS"

Despite a 70,000-lb. lift and carry capacity, the Wagner LJ 3-70 Lumber Jack is designed for fast work in mass-production operations. Its CRT-5630 TORQMATIC DRIVE lets the operator quick-shift at full throttle to speed loads—one reason why it is standard equipment in this machine.



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One contractor who owns a Euclid TS-24 Twin-Power scraper reports: "One Twin is equal to five 130-h.p. crawlers with 10-yd. tow-type scrapers." Another says: "One Twin is equal to three 12-yd. self-propelled scrapers plus pusher." Typical? You bet. And the CRT-5630 is one of the TORQMATIC team members that make twin power possible.



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At the Better Highways Information Foundation booth, Art Trautmann, field coordinator for BHF is ready to answer all questions.



(Continued from preceding page)

can Association of State Highway Officials.

Both Congressional representatives were in basic agreement with President Kennedy's special message to Congress on the national highway construction program. The panel discussion in Boston took place on the same day that the President's highway program was submitted to Congress. Both Rep. Fallon and Rep. Scherer felt that the big problem would be in financing the program. Opposed to either a "stretch-out" or a "crash" program, Rep. Scherer contended that it would be better for the economy of the country to complete the program by 1972, the original target date. In that way, the peaks and valleys in our economy would be avoided. The Ohio congressman said that he was opposed at this time to any reimbursements to the states that have constructed toll roads that will be included as part of the Interstate System.

On the subject of Congressional investigations of highways, Rep. Fallon stated that he had attended most of the hearings, and that wrongdoings have concerned only a few contractors. "Like thousands of marriages that have held together for 30 or 40 years," he remarked, "they get no publicity, but a juicy divorce case always gets the headlines." Rep. Fallon also stated that he could not understand the attitude of oil companies in opposing a rise in gasoline taxes, since they are one of the greatest beneficiaries of the highway program.

Federal Highway Administrator Rex Whitton reported that of the 41,000-mile Interstate System, 10,400 miles are now open to traffic, with another 4,100 miles under construction. On an additional 10,000 miles, engineering or right-of-way acquisition is now under way. On the ABC program—federal-aid primary and secondary highway systems and their urban extensions—113,000 miles are completed. The program started July 1, 1956.

AASHO executive secretary Johnson stated that he felt the highway program was keeping within its original cost estimates. He also pointed out the need for a vastly improved public-relations program to tell the

advantages of good highways.

Specialty contracting

The voice of the specialty contractor was heard at a building-construction session in an address by George B. Roscoe, executive secretary of the Council of Mechanical Specialty Contracting Industries, Inc., Washington, D. C.

"The general contractor should understand," commented Roscoe, "that in the radical change in technology of the past decade, the electrical and mechanical content of a building has grown to the extent that it frequently exceeds half the dollar cost of the structure. The complexity of equipment and installation engineering has made the mechanical and electrical contractor an increasingly important

member of the building team. It has been necessary for him to acquire resources and competence that often rival that of the general contractor. I am sure that most of you general contractors realize that and regard him as an important joint venturer with you and not a garage-shop vendor coming to you with hat in hand."

Roscoe gave the viewpoint of the specialty contractors who advocate the separate-contract system as opposed to the single-contract system supported by general contractors. "The mounting pressure for separate contracts stems," he said, "from the increase in the incidence of bid shopping and bid peddling. The broker-type general contractor has mastered the art of these unfair trade practices to the point where it is his margin for

winning the for himself his subcontractor willing to do no-profit job and the line, su "Obvious procedure system that to go on destructive industry and customer. who want to do some well that t it. It may a contractor rate-contra willing to

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Grading, hauling, backfilling or blade-work: Versatile INTERNATIONAL model BC-180(4x4) can work any part of the job. This compact-design truck maneuvers easily in tight working conditions. Both front and rear have power take-offs to deliver INTERNATIONAL's full V-8 authority where you want it. Gasoline or LPG 6-cylinder engine optional, GVW rating up to 20,000 lbs.



Moving a 10-yard load of rock: Rugged INTERNATIONAL model RF-190(6x6) has the power and traction to do it—out from under the shovel and back on the road without bogging down. If will perform under the most foul weather conditions. Six-cylinder engines up to 212 hp., GVW rating up to 43,000 lbs.



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winning the job and realizing a profit for himself. He has collected about him subcontractor satellites who are willing to take a chance on making a no-profit job yield a margin by chiseling and cheating someone else down the line, such as the suppliers.

"Obviously there is a fault with the procedure under the single-contract system that permits this sort of thing to go on and on and mount in its destructive erosion of profit to the industry and depreciating service to the customer. It is incumbent on those who want the single-contract system to do something to make it work so well that the customers will demand it. It may seem odd that the specialty contractors, who advocate the separate-contract system, are perfectly willing to join in any proper and

Delegates look over an exhibit presented by the Bureau of Public Roads, U. S. Department of Commerce.

practical effort to perfect the procedures so that the single-contract system will work and be more acceptable to subcontractors and customers alike."

Roscoe warned the AGC session that "the specialty groups will not let up on their support of separate contracts until there is firm and positive evidence that a subcontracting procedure that will provide such equitable treatment has been put into effect and will be maintained in effect."

Referring to the federal government, the building contractors' largest single customer, Roscoe observed,



"Sooner or later the government will find it necessary to correct its bidding procedures to protect itself against the broker contractors who have, through the bid-peddling and shopping route, captured a large part of the federal construction projects. They are increasing their portion at the expense of the builder-type contractor and the ethical subcontractors. Perhaps the time is near for the general and specialty contractors to join together in suggesting a fair bidding procedure policy and method to the Congress that would be applicable to federal public works. The need exists and the Congress is becoming keenly aware of it."

Accident prevention

The H. B. Alexander award for safety activities for the year ending September 30, 1960, went to a construction company in the heavy division—Montag, Halvorson, McLoughlin & Associates, The Dalles, Ore.

For this 42nd annual convention, 780 delegates registered from 48 states and the District of Columbia. Only Hawaii and Montana were not represented. Of that number, 385 were accompanied by their wives.

The 1962 AGC meeting will be held in Los Angeles, Feb. 26 to March 1.

THE END

HRB study on equipment for freeze-thaw tests

■ "Automatic Equipment for Freezing-and-Thawing Tests," Bulletin No. 259, has been published by the Highway Research Board, Washington, D. C.

The 27-page bulletin contains two papers. The first describes experience in the construction, development, and use of this type of equipment for a small laboratory at the engineering experiment station, Utah State University, Logan, Utah. The second describes the construction and operation of 25-specimen-capacity equipment, together with instructions for operation and maintenance, individual component and over-all costs, and a discussion of typical test results. The papers are supplemented with tables and photographs.

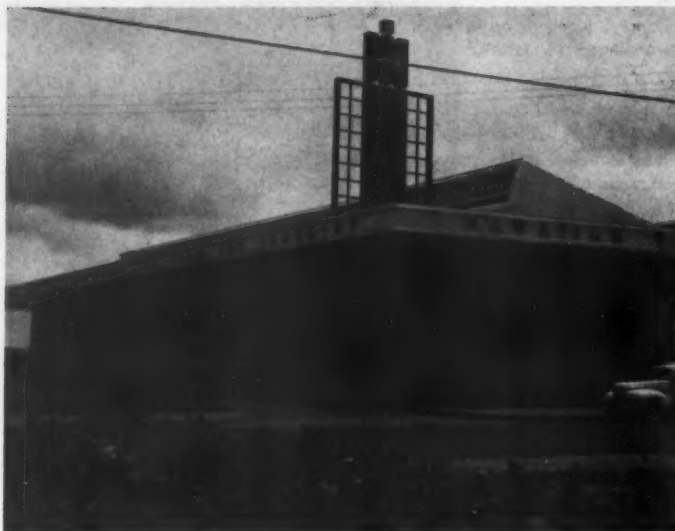
The bulletin, priced at 80 cents, may be obtained from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C.



Off-road workhorse, hardtop pickup... you can count on the new, low-cost Scout to whip you out to the job site and back comfortably, economically. The Scout carries three men in the enclosed all-steel cab, hauls hefty loads in the 5-foot box. It strips down for even faster action, too—roof, doors and windows are removable in minutes, windshield folds down. Powered by tough, new INTERNATIONAL 4-cylinder COMANCHE engine to save you gas. Ask your SCOUT Dealer for full details now.

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Neatly landscaped grounds set off the attractive office and showroom of Hawaiian Equipment Co., Ltd., Honolulu, which has problems stateside dealers never encounter. One, for example, involves shipment of rigs and parts from the mainland.



Problems? At least you

Contractors and Engineers Staff article

Being located 2,000 miles from the United States mainland and 4,000 miles or more from the factories of many of the manufacturers it represents creates some unusual problems for the Hawaiian Equipment Co., Ltd., Honolulu, distributors for the state of Hawaii.

New equipment and parts must be shipped by boat from the mainland, except for the few emergency items that can absorb the cost of air freight. Delivery of machines or parts to other islands of the state must be made by boat or airplane. Over these long distances, telephone and teletype bills reach astronomical proportions.

Simply sending a man back to a factory school or a meeting means a 4,000 to 10,000-mile round trip, depending on whether the destination is the West Coast or some point between there and the East Coast. Even the salesman's weekly trip to the next county is a 200-mile hop on one of the interisland air lines.

Air transportation has taken tremendous forward strides in the past two decades. In the early 1940's, it was a 17 to 21-hour trip to Los Angeles or San Francisco via Pan American Clippers, and the fare was \$378 each way. Prior to the Clippers, it was a 4½-day cruise by ship. Today it's a 4½-hour flight by jet plane, and the tourist-class fare is \$133 each way.

Taking the handicaps of distance and ocean in stride, Hawaiian Equipment has expanded into an important industry doing some \$6 million worth of business annually through its main store in Honolulu, branches in Hilo and on Kauai, and a sub-dealer on Maui.

The Hawaiian Equipment Co., Ltd.



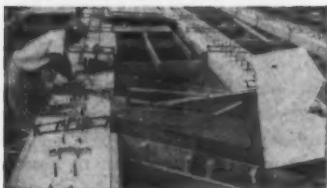
Adjustable steel shelving, used for storage of small parts, makes it easy for employees to fill orders.

CONTRACTORS AND ENGINEERS

Jobs Finished ON TIME with SUPERIOR



Interstate Highway Bridge—Iowa



Prescon Hangers in Position



Illinois Toll Highway Bridge



Vallejo, Calif. Interchange

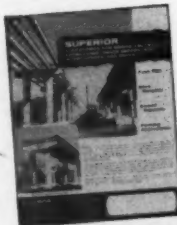
Efficient and Fast Forming of Bridge Abutments, Approaches, Interchanges, and Decks with SUPERIOR Concrete Accessories.

Building of today's overpasses, interchanges, and related projects require the latest in engineering advances and construction techniques. . . . And with increasingly keen competition on all types of concrete construction, contractors have found that the efficient forming methods of SUPERIOR Accessories offer all-important bidding advantages.

When you need form hangers for decks, threaded coil ties for walls, or heavy-duty screed supports for heavy screeding equipment, specify SUPERIOR and you'll finish the job on time! The jobs shown here used the SUPERIOR Accessories illustrated below.

Our experienced engineering service is available to prepare form layouts, estimates and quotations. This comprehensive service is offered free.

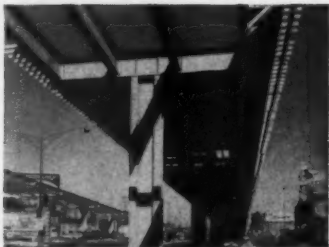
Photo Credits: Marquette Cement Co.; California Division of Highways; Kenny Construction Co.; Illinois Toll Highway Commission



For Details request a copy of 6-page BULLETIN BB-458



Deck Supported with Superior Hangers



Chicago-Calumet Skyway



HEAVY-DUTY SCREED SUPPORTS



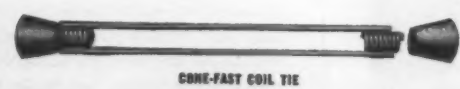
SCREED CHAIRS



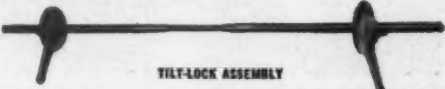
NEW
PRES-STEEL HANGER
HAUNCH PRES-STEEL HANGER



Prescon Hanger



CONE-FAST COIL TIE



TIILT-LOCK ASSEMBLY

SUPERIOR Concrete Accessories, Inc., 9301 King St., Franklin Park, Ill.
A Suburb of Chicago

NEW YORK OFFICE
39-01 Main St., Flushing 54, N. Y.

HOUSTON OFFICE
4101 San Jacinto, Houston 4, Tex.
For more facts, use Request Card at page 18 and circle No. 297

PACIFIC COAST PLANT
2100 Williams St., San Leandro, Calif.

Distributor Doings

Why you're on mainland

is a wholly owned subsidiary of Castle & Cook, Inc. The operating management includes president S. T. Dickey and secretary-treasurer O. H. McPheeters. The vice president of the firm is Howard Hubbard, and the chairman of the board is Malcolm MacNaughton, president of Castle & Cook, Inc.

Handles many lines

The directory of manufacturers represented by Hawaiian Equipment is a 24-page typewritten document containing the names and addresses of some 200 firms. Alphabetically, they range from the Albina Engine & Machine Works to Yuba Consolidated Industries. Included between A and Y are some of the best known names in the construction industry—Baldwin-Lima-Hamilton, Barber-Greene, Continental, Drott, Fruehauf, Hough, Huber-Warco, Ingersoll-Rand, International Harvester, LeTourneau, Westinghouse, Pettibone Mulliken, and Waukesha, to name just a few.

In addition to construction equipment, these accounts include the International truck line together with accessories, and a variety of agricultural implements and supplies.

A substantial part of the business, especially through the Hilo branch, is the supplying of equipment for the sugar industry. Much of this consists of special attachments such as cane rakes, planters, and harvesters, which are attached to International TD-15 and TD-20 crawler tractors.

With factories and parts depots located on the mainland some three weeks or more away by water transportation, this dealer is compelled to carry a large and varied parts stock. The usual stock inventory in the Honolulu store is valued at around half a million dollars, and another \$300,000 worth is stocked in the branches. This means quick delivery from stock most of the time.

To speed the placing of orders, the company maintains a closed-circuit teletype service with the branches and has an open-circuit McKay radio teletype connection to the main-

land. Between these two teletype systems and the many long-distance phone calls that are necessary, the bills are pretty large.

At the Honolulu store, parts stocks are maintained in two buildings. The small parts are stocked in a portion of the 25,600-square-foot building (Continued on next page)



A busy place most of the time, the parts desk at the rear of the showroom has a counter and stools where customers can relax while their orders are filled.



NOW

YOUR CRANE CAN DRILL HOLES...

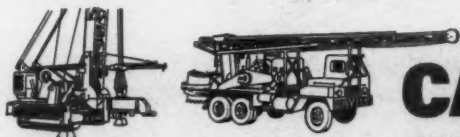
1' to 14' in diameter and 200' deep!

Drill up to 60' per hour; remove 1½ yards per pass. You add to the utility and "profit-ability" of your crane with a Calweld Series 150-C big bore, bucket type drill attachment. Clean, straight holes—dug by Calweld—require no manual digging or extra finishing.

Calweld bores cast-in-place piles cleanly without disturbing sub-strata... pre-bores through fill or hard strata for pile-driving... drills caisson holes and shapes belled footings at high speed. Soil and gravel sampling and soil exploration are easy—the big bore Calweld bucket removes a large sample and leaves a smooth hole for visual inspection of strata.

Calweld drills can be mounted on any 1½-yard crawler or truck crane in less than 30 minutes. Self-contained unit operates independently of crane power. Controls are brought to the cab for one-man operation. The average crane man needs no special training or experience.

Hydraulic drill positioners permit accurate slant drilling to a 1 to 3 batter. Hydraulically actuated kelly drive yoke serves as kelly crowd and adds to the crane's capacity for pulling casings. Telescoping and triple-scoping kelly bars permit drilling up to 150' deep without extra drill stems. Many of these features are built into the new Calweld series 100-C attachment for ¾ or 1-yard cranes.



WRITE TODAY FOR ILLUSTRATED LITERATURE

CALWELD DRILLS

CALWELD INC. • 7222 E. Slauson Avenue • Los Angeles 22, California

For more facts, use Request Card at page 18 and circle No. 298



A Kardex system with approximately 45,000 cards maintains a continuous inventory of the parts stock. The Honolulu headquarters values its inventory at about half a million dollars.



Large and heavy parts are stored on pallets that can be handled by the dealer's two Buda fork trucks. Here, in the outside storeroom—a 15,000-square-foot Butler metal building—one of the Budas handles a pallet of track rollers.



The 10,000-square-foot tractor shop, a light metal building that is completely open along one side, here has a number of machines undergoing repairs. A Lo-Hed 4-ton traveling crane helps handle the heavy parts as machines are disassembled and assembled.

distributor doings

(Continued from preceding page)

that also houses the showroom, offices, and truck-repair shops. Items that can be easily handled by hand are carefully arranged in steel shelves and bins in an area immediately adjacent to the parts desk.

Easy handling of parts

All heavier items are placed on pallets and handled by two fork trucks. Shelves in a portion of the inside warehouse are spaced to receive the pallets, and the aisles between these shelves are wide enough to permit the fork trucks to maneuver.

The larger and bulkier items are stored in an outside warehouse, which is a Butler metal building covering 15,000 square feet of space. One complete side of the building is open to admit light and for easy access by the fork trucks. The stocks in this warehouse are also palletized and handled by the fork trucks. Among the items stored in this structure are aluminum irrigation pipe, Spanall form joists, engines, and heavy tractor parts.

A complete and continuous inventory of the parts stock is maintained on a Kardex system utilizing approximately 45,000 cards. The firm's accounting is done on Castle & Cook's IBM machines.

The heavy-equipment repair shop is in a separate 10,000-square-foot metal building. This facility demonstrates the advantages of the mild subtropical climate. It is an unlined light metal building with one side completely open. No doors are required, and there is enough natural light through the open side and through fiberglass panels in the roof for general illumination.

A traveling Lo-Hed crane with a capacity of 4 tons assists the workmen in lifting and moving heavy parts such as engines and tracks.

Most customer service is done in the field or the customers' shops. For this work, Hawaiian Equipment maintains 11 field service rigs—five in Honolulu, four in Hilo, and two on Kauai. These rigs are equipped for the particular service they do, which includes work on many types of equipment.

A wash rack with Kelite steam cleaner is located near the shop so that all equipment can be cleaned of



machines,
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dealer's
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arrival.

SEE
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FLEETS

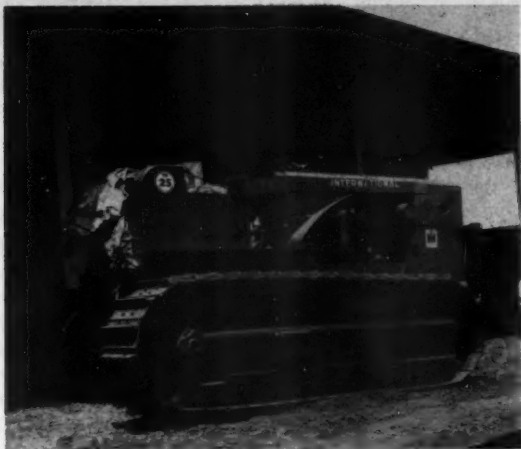


	Max. Load
1000	1400 lb.
1500	1300 lb.
2000	2550 lb.

ARE SEND CO
FORMATION ON
ROULET 4-WHE
E LINEUP TO

961

machines, such as this International TD-25, arrive at the dealer's stripped of attachments. They are completely outfitted after arrival.



dirt and grease before entering the shop. In a nearby paint shop, the overhauled rigs are made to look like new with a shiny new paint job.

The truck-repair shop is included in the main building, which also houses the offices and parts storage. Adjacent to the truck shop is a well equipped diesel-fuel-pump repair shop, completely enclosed, well lighted, and supplied with filtered air. In this shop are both Unitest and International Harvester test and repair stands for fuel pumps, so the shop can handle practically any pump it gets.

The entire complex of buildings is

situated on a piece of land containing only 2.5 acres. Available land is scarce in Honolulu, and it is extremely valuable. This tract, well on the outskirts of the city, is valued at \$100,000 per acre exclusive of buildings.

Sales by demonstration

This dealer believes in field demonstrations to sell the big equipment. Little of the big machinery is on display in the modest showroom, and most of the limited outdoor show area is occupied by used equipment. But there is always something out on demonstration. The effectiveness of this type of selling was demonstrated when Hawaiian Equipment sold five of the first 13 International TD-25 tractors distributed through the Oakland District.

Hawaiian Equipment has an average payroll of 145 people, of whom 80 are employed in the Honolulu store. In addition to the executive management, the staff includes parts managers T. Takdo and James E. Hayden, service superintendent Rae Eisele, and sales managers Edward Giese, Jack Blades, and C. B. Broderick. The latter three handle trucks, machinery, and tractors, respectively. The branch at Hilo on the island of Hawaii is managed by A. C. W. Ireton, and the Kauai branch is managed by Richard King. THE END

Distributors named by Harnischfeger

Harnischfeger Corp., Milwaukee, Wis., has appointed several new distributors for its line of P&H construction and mining products.

Contractors Equipment Co. of La., Inc., 3111 Louisville Ave., Monroe, La., will cover the northern two-thirds of Louisiana. Mingolla Machinery Co., Inc., Concord Industrial Park, 5 Main St., Concord, N. H.—with a branch at 540 N. Main St., Barre, Vt.—will cover New Hampshire and Vermont. Ace Equipment Sales, Inc., 9522 N. E. Sandy Blvd., Portland, Ore., will handle the northwestern counties of Oregon and southwestern counties of Washington; and Southland Tractors, Inc., 195 S. Parkway Ave., Memphis, Tenn., will cover western Tennessee, eastern Arkansas, and northern Mississippi.

The new dealers will handle the complete line of P&H crawler and rubber-tire power cranes and shovels from the 12½-ton Model 105B-TC "Miti-Mite" through the 110-ton-capacity Model 1015. In addition, Contractors Equipment, Ace Equipment, and Southland Tractors will handle soil stabilizers and loaders.

H. O. Penn promotions

The H. O. Penn Machinery Co., New York, N. Y., has appointed John Rossi to handle new and used machinery sales in Suffolk County, Long Island. Rossi has been with the company since 1948. He has served as parts manager and as assistant to the branch manager.

John M. Ireland, Jr., succeeds Rossi (Continued on next page)

CHEVY 4-WHEEL DRIVE—NOW ON 12 MODELS

SEEN IN ALL THE WORST PLACES






They keep showing up in places most trucks can't get to because it takes a awful lot to stop these sure-footed Chevy four-wheel-drive models! Where the job calls for the mobility of a mountain goat teamed with the stamina of a mule, you'll find no finer way to get your work done. And for 1961 the Chevrolet 4-wheel drive lineup is a full dozen models long. You can pick from a wide selection—one that's sure to include the best answer to your toughest traction-plus requirement!

Put any one of these 4-wheel drive Chevis on any job—then watch it dig in and go! Come what may in the way of mud, snow, sand, loose gravel, creek bottoms, swampland or freshly plowed ground, you can rest assured that the extra bite of up to double traction—plus stumping road clearance—will get you through any time.

And you'll like the way a Chevy 4x4 rolls down the highway in smooth 2-wheel drive, ready to give you 4-wheel traction at the flick of a lever, the moment you need it. You'll appreciate the no-clutch

shifting ease of the transfer case (whether moving or standing still) and the extra versatility that's yours with a choice of 4-wheel direct or underdrive.

If you prefer the extra snap of spirited V8 power, it's yours at nominal extra cost in any model. Also available at extra cost are heavy-duty 3-speed and 4-speed transmissions and a wide choice of traction tires. You can tailor your Chevy 4 x 4 to fit your needs exactly. Get the full details and turn your traction problems over to Chevy—the traction champ of them all!... Chevrolet Division of General Motors, Detroit 2, Michigan.

FLETSIDE			STEPSIDE			CHASSIS-CAB			PANEL		CARRYALL	
												
Model	Max. Load	Body Length	Model	Max. Load	Body Length	Model	Max. Load	Wheel-base	Model	Max. Load	Body Type	
K1404	1400 lb.	6½'	K1404	1450 lb.	6½'	K1403	1900 lb.	115"	K1405	1300 lb.	7½' Panel	
K1504	1500 lb.	8'	K1504	1550 lb.	8'	K1503	1850 lb.	127"	K1406	1000 lb.	Carryall (panel type rear doors)	
K2504	2950 lb.	8'	K2504	3050 lb.	8'	K2503	3500 lb.	127"	K1416	1000 lb.	Carryall (tailgate and liftgate)	

SEND COUPON TODAY

PLEASE SEND COMPLETE Name _____
 INFORMATION ON THE Company _____ No. of trucks owned _____
 CHEVROLET 4-WHEEL Address _____
 LINEUP TO: City _____ Zone _____ State _____

Fill out and mail coupon to:
 Commercial and Truck Dept.
 Chevrolet Motor Division
 General Motors Corporation
 Detroit 2, Michigan

24

1961 CHEVROLET STURDI-BILT TRUCKS



distributor doings

(Continued from preceding page)
as assistant to the branch manager. Since 1958, he has been in charge of all undercarriage rebuilding in the company's welding department.

Lester Stevens is the new supervisor of the welding shop.

Koehring appointments

Challenge-Cook Bros., Inc., 3334 San Fernando Road, Los Angeles, has been appointed by Koehring Co., Milwaukee, Wis., as Koehring Division construction-machinery distributor in the southern half of California and the southern tip of Nevada.

The new distributor will sell and service the full line of Koehring crawler and rubber-mounted cranes and excavators, Twinbatch and Tribatch pavers, longitudinal and transverse finishers, Dumptor off-road hauling units, and Skooper loaders.

Koehring California Co., a division of Koehring Co., Stockton, Calif., has appointed G-K Machinery Co., 5200 Federal Way, Boise, Idaho, a distributor for that state.

The new dealer will handle the complete KO-CAL line of construction machinery, including asphalt-paver feeders, windrow sizers, tamping rollers, water haulers, etc.

Dealers—this is your department. Send us information regarding your new appointments, new plants, and similar data.

New representative for Buck Equipment

Buck Equipment Corp., Cincinnati, Ohio, has appointed Sinclair Sales Co., Inc., 376 M & M Bldg., Houston, Texas, southwest regional representative for its complete product line, including Buck HoistTowers—self-erecting, portable hoisting machines for the building construction industry.

Sinclair Sales will cover Oklahoma, Texas, Arkansas, Louisiana, Mississippi, and western Tennessee.

Huber-Warco dealer

Huber-Warco Co., Marion, Ohio, has named Theodore J. Burke & Son, Inc., 145-11 Liberty Ave., Jamaica 35, New York City, a distributor for its

motor graders, tandem and 3-wheel rollers, and maintainers.

The dealer will handle New York State south of and including Sullivan, Ulster, and Dutchess counties.

Mack Truck Sales of Wichita, Kan., 2441 South West St., Wichita, Kan., will handle the company's equipment in a 16-county area in south central Kansas.

Dealer training center built by Allis-Chalmers

Allis-Chalmers Mfg. Co., Milwaukee, Wis., has completed a new training center, providing a factory-supervised training program for its construction-machinery dealers' service personnel, at the firm's Springfield, Ill., plant.

The center covers some 17,000 square feet and features a lecture room, shop, engine check room, atmosphere-conditioned fuel-pump and calibration room, display and group-instruction area, and offices for staff personnel.

The courses, most of them a week long, are based on a study of Allis-Chalmers construction-machinery component systems, their function, servicing, and relation to various operating equipment. Included are sessions on hydraulics, transmissions, steering clutches and mechanisms, and chassis and undercarriage systems. The classes are conducted by factory service specialists. Classroom study is coordinated with shop instruction to provide a balanced program.

New distributor named for Buffalo-Springfield

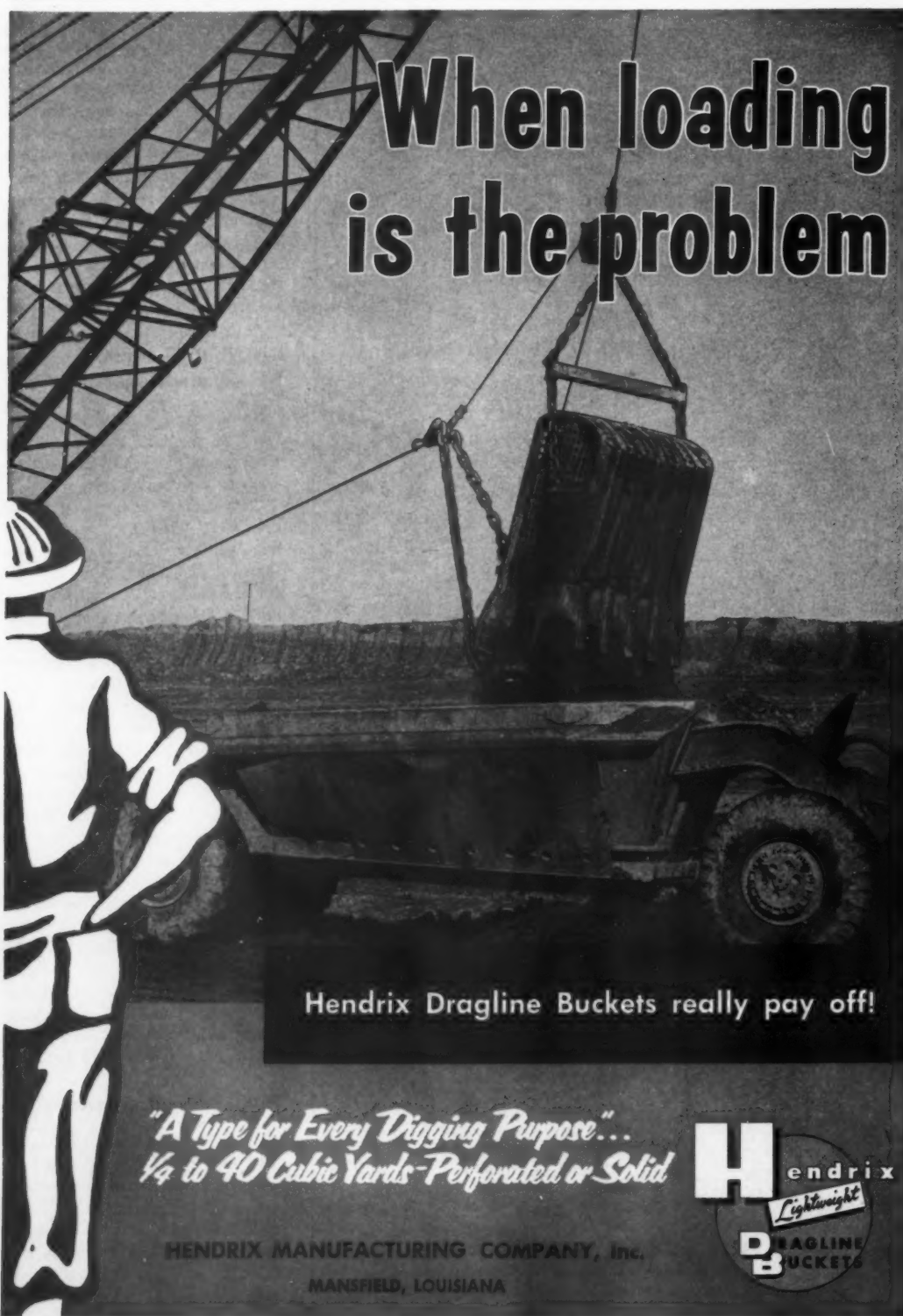
The Buffalo-Springfield Co., Springfield, Ohio, has appointed Contractors Machinery Co., 5311 Plainfield Ave., Grand Rapids, Mich., a distributor for the state of Michigan with the exception of the Upper Peninsula.

The new distributor, which has a service branch at 13200 North End, Detroit, will handle sales and service on the complete line of Buffalo-Springfield compaction equipment, including 7 and 9-wheel pneumatic-tire rollers, 2 and 3-axle tandem rollers, and the 4-wheel Kompactor.

Kwik-Mix appoints

The Kwik-Mix Co., Port Washington, Wis., a division of the Koehring Co., has appointed the Eddy-Walker Equipment Co., 4044 E. 14th St., Des Moines, Iowa, and Cleveland Contractors Equipment Co., 10904 Brookpark Road, Cleveland, Ohio, distributors for its complete line of equipment in central Iowa, and northeastern Ohio, respectively.

Both dealers will handle sales and service on tilting and nontilting bituminous mixers, Moto-Bug material handlers, and the Hi-Lifter, a 4-wheel-drive material-handling unit designed for outdoor use. Cleveland Contractors will also handle the complete line of KA-MO earth-boring and drilling equipment.




When loading is the problem

Hendrix Dragline Buckets really pay off!

"A Type for Every Digging Purpose..."
1/4 to 40 Cubic Yards—Perforated or Solid

HENDRIX MANUFACTURING COMPANY, Inc.
MANSFIELD, LOUISIANA



For more facts, use Request Card at page 18 and circle No. 300

Avoid legal pitfalls

Subcontract repudiated by prime contractor

THE PROBLEM: Defendant, prime contractor on a school building job, awarded a subcontractor the electrical work. The prime contractor empowered the school board to approve or reject any subcontractor selected by defendant, but the board did not reject plaintiff. Later, defendant awarded the subcontract to another electrical contractor. Did defendant render itself liable in damages to plaintiff for breach of the subcontract?

THE ANSWER: Yes. (J. D. Hedin Construction Co., Inc., appellant-defendant, v. F. C. Bowen Electric Co., Inc., appellee-plaintiff, 273 Fed. 2d 511, decided by the United States Court of Appeals, District of Columbia.)

But the court ordered a new trial on the ground that the trial judge erroneously awarded \$30,000 as lump-sum damages on a theory that plaintiff was prevented from earning a profit of that amount when defendant repudiated the subcontract. In bidding, the subcontractor estimated a profit of \$19,537. The Court of Appeals said damages should have been assessed as nearly as possible on the basis of the contract price, less the costs of completing the subcontract work as of the time when the subcontract was repudiated.

Equipment purchase not covered by bond

THE PROBLEM: The prime contractor for grading and drainage work on a Kentucky turnpike project gave bond to pay "all claims for labor, materials, and supplies furnished for use" on the project. A subcontractor secured needed bulldozers and other heavy equipment from an equipment company under what were called "leases" but were in reality conditional sales contracts. After several months, the prime contractor defaulted in performance, and used the equipment until the conditional seller repossessed it for default of the subcontractor in making payments on the purchase contracts. Did the equipment company have a valid claim against the payment bond?

THE ANSWER: No. (Traylor Bros., Inc., v. Indiana Equipment Co., 336 South Western Reporter, 2d, 590, decided by the Kentucky Court of Appeals.)

The court reasoned that the equipment company had no valid claim against the prime contractor since the latter used the equipment by virtue of the subcontractor's right to use it until the equipment company exercised its right to retake possession. Most of the court's opinion deals with the point that, under Kentucky statutes, the equipment did not constitute "supplies" within the coverage of the payment bond.

Right to damages for credit injury

THE PROBLEM: A bank sued a contractor on a note, and the latter counterclaimed damages on the ground that, before the note was given, the bank had wrongfully notified another bank in another state that the contractor was in poor financial condition, which resulted in his being deprived of working capital and obliged to abandon contracts. Was the counterclaim properly dismissed?

THE ANSWER: Yes. (Irby v. Citizens

National Bank of Meridian, 121 Southern Reporter, 2d, 118, decided by the Missouri Supreme Court.)

The court reasoned that the contractor's damage claim was not in any way connected with the note and therefore was not a proper subject of counterclaim. In other words, that claim could only be litigated in an independent suit.

Contractor not liable for loss due to fire

THE PROBLEM: A road contractor's employee negligently severed a telephone cable while operating a bulldozer. Early next morning fire broke out in plaintiff's nearby sawmill, and a watchman was unable to reach the fire department by phone. The fire

Edited by A. L. H. STREET Attorney-at-Law

These brief extracts of court decisions may aid you. Local ordinances or state laws may alter conditions in your community. If in doubt consult your own attorney.

loss was thereby increased. Was the contractor liable for the increased loss?

THE ANSWER: No. (Pope v. Pinkerton-Hays Lumber Co., 120 Southern Reporter, 2d, 227, decided by the Florida District Court of Appeal.)

Because neither the contractor nor his employee could have reasonably

You can drill and drive with a Jaeger Roto

A Jaeger Rotary compressor is one of the most efficient and useful tools you can invest in.

On this interchange job, for example, a Jaeger "600" first powered the auger to drill pilot holes, then drove the piling with a waiting Vulcan #1 hammer — as smooth as steam.

LOW COST AIR, UNDER CLOSER CONTROL: Any big Jaeger Roto will deliver more than 500 cf of air per pound of fuel. This is because the efficient Jaeger produces full rated volume at 1700 rpm with the same engine others must operate at 1800 rpm.

Moreover, pressure is held constant, even under the widely fluctuating demands of pile driving. Speed modulation is smooth, stepless, and instantaneously controlled, over the entire operating range.

Ask your Jaeger distributor for the cost-saving figures on any size Jaeger Rotary — 75 to 900 cfm, or send for newest catalog JC-0.



FOR SMALLER HAMMERS TOO: Jaeger "250" Roto, a portable 2-wheel compressor, keeps McKiernan-Terry #5 hammer hitting 300 blows per minute for R. A. Wattson, contractor on Los Angeles County flood control project.

LEFT: "600" compressor powers air motor to auger pilot holes for beam piling, then drives piles with Vulcan #1 hammer. Job is controlled access divided highway with interchange on Interstate 240, near Memphis. S & W Construction Co.

THE JAEGER MACHINE CO., 701 Dublin Avenue, Columbus 16, Ohio

Jaeger Machine Company of Canada, Ltd., St. Thomas, Ontario

Worldwide sales and service through Jaeger International Corp., Apartado 137, Panama, R. P.

PUMPS • TRUCK MIXERS • CONCRETE MIXERS • CONCRETE SPREADERS • FINISHERS • FINISHER-FLOATS

For more facts, use Request Card at page 18 and circle No. 301

avoid legal pitfalls

(Continued from preceding page)
foreseen that a fire would break out at the mill and that the fire department could not be notified, the court set aside a damage award against the contractor. The higher court reasoned:

It would appear necessary to indulge in presumptions in order to make defendant liable for the fire damage, even if he should have foreseen that the mill would catch on fire. It must be presumed that if a phone call had gone through uninterrupted by defendant's negligence, the call would have been answered promptly, the fire department would have responded promptly, there would have been no other mishap of any kind, the water pressure would have been ample, the fire apparatus in good working order, and no adverse winds. In short, in order to hold defendant liable for the fire loss, it must be presumed that everything else would have turned out perfectly. And after all these suppositions, mere conjecture is left as to what damage would have resulted had the phone cable not been cut.

Fraudulent concealment

THE PROBLEM: A building contractor fraudulently concealed from the owner that pier and beam foundation was defective. The defect was not visible. Was the statutory time limit within which the owner had a right to sue for damages postponed until the owner became aware of the contractor's breach of agreement?

THE ANSWER: Yes. (Grace v. Parker, 337 South Western Reporter, 2d, 518, decided by the Texas Court of Civil Appeals, Austin.)

The court said that the contractor knew, and was bound to know, how the building was constructed. He was bound to inform the owner of any concealed departure from the plans.

Completion requirement was waived by owner

THE PROBLEM: A written contract called for complete construction within 240 days and for written orders for extra work. On the facts involved, did the owner waive the requirement for written orders and thereby impliedly agree to allow the contractor additional time reasonably required by new change orders?

THE ANSWER: Yes. (Howard J. White, Inc., v. Varian Associates, Cal. Rptr. 871, decided by the California District Court of Appeal, First District.) But the court also decided that the contractor was not entitled to collect for installing extra concrete in a floor slab where a note on the structural plans directed the contractor to disregard the stated specifications for strength of concrete and stated new specifications for such strength.

And because the contract made the city plumbing code a part of the specification for minimum requirements and required the contractor to provide at no extra charge additional

material and labor when required by the code, the contractor was not entitled to extras expended in installing cast-iron sewer pipe required by the ordinance instead of clay pipe called for by the contract specifications.

Delay to contractor caused by strike

THE PROBLEM: A federal contract called for removal, within one month, of railroad tracks from an area around a gaseous diffusion plant. Work was commenced on time but was delayed thirty days by a strike of employees at the plant and a picket

line around the premises. Was the government liable for the resulting damage to the contractor?

THE ANSWER: No. (Frite-Rumer-Cooke Co. v. United States, 279 Fed. 2d, 200, decided by the United States Court of Appeals, Sixth Circuit, upholding a judgment to the same effect by the United States District Court, Southern District of Ohio.)

The Court of Appeals reasoned that the government was in no way at fault. It furnished the work site that was available during the picketing. The government could not be blamed because the contractor's employees refused to cross the picket line.

Sunstroke was deemed compensable accident

THE PROBLEM: Toward the end of a hot, humid day, a concrete-curb finisher on a highway job in Oklahoma suffered sunstroke, which resulted in disabling injury. Was he entitled to an award of disability benefits under the state workmen's compensation act?

THE ANSWER: Yes. (H. J. Happel & Admiral Paving Co. v. Bell, 352 Pacific Reporter, 2d 400, decided by the Oklahoma Supreme Court.)

The decision was influenced by evidence showing that claimant had

Savings in engine costs alone make the "Euc" C-6 today's best tractor buy

In the Euclid C-6 you get the advantages of job proved power train components... the reliability of the GM 6-71 engine, Allison Torqmatic Drive and Euclid's famous planetary drive... that help keep downtime to a minimum. You get designed-in service accessibility that's unsurpassed by any competitive crawler... servicing or complete removal and replacement time is well below that required for comparable tractors.

You get a big advantage, too, in the lower cost of engine replacement parts... savings that cut your maintenance expense to the absolute minimum. For example, pistons and rings for a competitive engine are 162% higher in cost than for the GM engine; a water pump 243% more; a block 270% more; and replacement of a complete engine, from fan to flywheel, costs almost twice as much in the competitive crawler. These savings, plus faster repair and replacement times, are some of the reasons why owners have found the "Euc" C-6 is the lowest cost tractor in the 200 h.p. class.

EUCLID Division of General Motors

Hudson, Ohio

Plants at Cleveland and Hudson, Ohio
and Lanarkshire, Scotland

Full-power shift... fast-as-a-fox maneuverability... and greater over-all work-ability!

Have your dealer give you all the facts and figures on the C-6... you'll find that in production and maintenance cost this "Euc" gives you a better return on investment.

worked all day under need for haste in finishing the curbing, and also by the unanimous opinion of medical expert witnesses who attributed the stroke to excessive exertion exacted by his task. The Supreme Court noted:

"A civil engineer, familiar with highway construction, testified . . . that a chemical reaction known as hydration takes place in concrete and creates an appreciable heat increase. A lay witness who was working with claimant on the day of the accident explained that such temperature rise may be felt through rubber boots while standing in concrete. The en-

gineer further stated that water, which comes up to the surface when concrete is laid, has the property of reflecting solar rays and heat. It was further shown that the position of the sun on the afternoon in question was such that its rays reflected directly at claimant, then working at the south edge of the roadway."

Racial discrimination was not proved

THE PROBLEM: A Negro concrete finisher on a government job was discharged, and he sued the contractor, claiming that he was wrongfully

dismissed because of his race. Did the evidence support his claim?

THE ANSWER: No. (Taylor v. Peter Kiewit Sons' Co., 271 Fed 2d 639, decided by the United States Court of Appeals, Tenth Circuit, upholding a decision to the same effect by the United States District Court for the District of Kansas.)

The Court of Appeals cited evidence showing that the man—only one of other colored men employed on the job—was laid off with the approval of the union to which he belonged, because reduction in the work force was necessary, and because other employees could do the type of work re-

quired better than he could. The court found it unnecessary to decide whether the suit could have been maintained on the ground of violation of statutory and constitutional provisions dealing with civil rights had he proved that he was actually discriminated against because of his race.

Time limits on damage suits

THE PROBLEM: A state statute specified that suit for breach of contract should be barred unless started within three years after right to sue arose. The owner of a newly constructed store building took possession April 1, 1951, and paid the contractor in full, after the latter assured the owner that defects in wall weatherproofing had been remedied. But dispute continued as to the contractor's responsibility for related defects in construction. On February 22, 1954, the contractor insisted that all of the work had been properly done and declared that no further responsibility would be recognized.

Within three years thereafter, the contractor was sued for damages for breach of the contract for which the contractor repudiated responsibility. Was the suit barred because of the lapse of time?

THE ANSWER: No. (Nowell v. Great Atlantic & Pacific Tea Co., 108 S. E. 2d 889, decided by the North Carolina Supreme Court.)

The court reasoned that the contractor encouraged delay in starting of the suit pending negotiations for settlement.

Third party's liability for injury to employee

THE PROBLEM: The prime contractor on a powerhouse job separately sublet structural steelwork construction and plumbing. Employees of the steel subcontractor negligently dropped a steel beam from a height of 60 feet, injuring plaintiff, an employee of the plumbing subcontractor. Plaintiff sued the steel subcontractor for damages. Was the latter entitled to have the suit dismissed on the ground that the injury was covered by the state workmen's compensation law, which provided for a smaller award than might be collected by suit?

THE ANSWER: No. (McCourtly v. United States Steel Corp., 93 North Western Reporter 2d, 552, decided by the Minnesota Supreme Court.)

The decisive facts were that the steel construction had been completed in the area where the accident occurred, and that the steel subcontractor had given the plumbing subcontractor clearance to proceed with the plumbing work. On those facts, the employees of the two subcontractors could not be regarded as "working together" or engaged in a "common activity" on the same project in such sense as to bring the case within the coverage provisions of the Minnesota workmen's compensation law.

C-6 service accessibility cuts replacement labor costs, too!

Assuming good shop conditions and experienced personnel, these are typical times for removal and replacement of components in the C-6 and another power-shift tractor of the same class:

Component	C-6	Man-Hours	Competitor "C"
Radiator	3	10	
Engine	3	14	
Recoil system	4	20*	
Drive Sprocket	3	9**	
Track Frame	3	8	

*requires 50-ton press
**requires 100-ton press and special tools

HOURS SAVED IN THE SHOP MEAN MORE WORK-TIME ON THE JOB!



EUCLID

FOR MOVING EARTH, ROCK, COAL AND ORE

For more facts, use Request Card at page 18 and circle No. 302



One laydown machine—this Cedarapids being fed by a Challenge-Cook end-dump trailer on an International—easily handled from 150 to 180 tons of mix per hour despite difficulties posed by short streets and radius curbs in a new San Jose, Calif., subdivision. The trailers carry 20 tons of mix per load.

(Additional photo on front cover)

Fast paver builds residential streets

Huge traveling service rig fuels and lubricates paving spread in the field in one quick stop

Contractors and Engineers staff article

Building new city streets in a fast-growing metropolitan area is a painstaking job with some problems not usually encountered in work on the open highways. A specialist in this type of work is the Leo F. Piazza Paving Co. of San Jose, Calif., which annually grades and paves many miles of new city streets in the mushrooming South San Francisco Bay area of California.

The new streets are usually built under contract with the developer of the area, but they are subject to the specifications of the city, county, or other governmental agency. These agencies usually provide on-the-job inspection of the work.

A typical job done by Piazza was the construction of some 20 blocks of streets in a new residential subdivision of San Jose called Hallmark Park, where the developer was building homes in the \$25,000 to \$30,000 category.

The streets were first brought to subgrade. Then sewer, water, and other utilities were installed by various firms. The contractor placed a variable lift of crushed-rock base as a subcontractor, Pete Cristich, built the concrete curb, gutter, and sidewalks. Piazza's crews then placed the bituminous surfacing to complete the streets.

Placing the base

Depending on the type and amount of anticipated traffic and on the bearing value of the subsoil, the streets received from 4 to 14 inches of crushed-rock base. This material was processed in the contractor's plant, trucked to the streets, and spread with a Cat No. 12 motor grader. Tank trucks added water as the material was worked and shaped by motor graders. Lifts of 6 inches or less were compacted by a Buffalo-Springfield 12-ton 3-wheel roller.

This base was primed with an application of 0.25 gallon per square yard of SC-1 road oil, which was applied by a subcontractor, Reed & Graham. The prime was allowed to cure for a day or more before application of the bituminous paving.

The bituminous surfacing was placed in two courses, a 2½-inch binder course and a 1½-inch surface course. The speedy Cedarapids paver



Drainage pipe of corrugated Beth-Cu-Loy steel flexes with fill to distribute stresses

One of the reasons why corrugated galvanized copper-bearing steel is such an ideal material for drainage structures is its combination of strength and flexibility. This makes possible the use of light-weight, thin-walled culverts which flex with the fill without buckling under the stresses. In this transverse flexing action, the pipe draws support from the surrounding material, distributing the load peripherally instead of concentrating it through the vertical axis.

Flexibility also permits corrugated galvanized Beth-Cu-Loy pipe to take the heavy vibration of modern traffic, as well as the shifting and freezing actions of soils. Longitudinal flexibility makes grading and alignment easy.

With Beth-Cu-Loy galvanized drainage structures, there's less earth to remove, less to replace; the trench need be only as wide as the pipe. Field joints can be made easily and quickly, and the long pipe lengths (up to 20 ft) mean fewer joints and rapid installation.

Beth-Cu-Loy corrugated galvanized sheets conform to the rigid specifications of the AASHTO. We shall be glad to furnish complete details about Beth-Cu-Loy sheet steel and how to solve your drainage problems with pipe made from these highly corrosion-resistant sheets. Just ask your fabricator, or write direct to us, for a copy of Booklet 425-A. Your inquiry will receive our prompt attention.

BETHLEHEM STEEL COMPANY, Bethlehem, Pa. Export Sales: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

For more facts, use Request Card at page 18 and circle No. 303



for Strength
... Economy
... Versatility





The paver does a good job of following around the radius curbs, where material is usually placed and raked by hand. The paver was faster on this work; more important, it did a better job.



This Buffalo-Springfield 10-ton tandem roller is one of two such rigs that work behind the paver. Surfacing was put down in a 2½-inch binder and 1½-inch surface course.

used to lay down the mix was the key machine in maintaining the good production rate, in spite of the many complicating factors.

On straight runs, the paver moved easily along at a fast clip. Big Challenge-Cook end-dump trailers pulled by International trucks hauled the mix from the plant in 20-ton loads. This meant few stops and little delay in getting trucks in and out of the paver. However, the straight runs were usually short, and the real test of speed came in paving around the radius curbs, getting back into position to start new lanes quickly, and adjusting to various lane widths.

The Cedarapids paver was equal to all of these situations.

On the radius curbs, the paver took a full hopper load from one of the trucks. Then, as the truck pulled ahead out of the way, the paver followed the curb, laying the mix neatly in the odd-shaped area. This not only saved a great deal of time over the usual hand shoveling and raking methods, but also produced a more uniform pavement. By skillful operation, the machine paved the area almost perfectly and hand raking was practically eliminated.

Most of the secondary streets were 32 feet wide between gutter lines. The paver laid two 11-foot lanes and one 10-foot lane. The crew made the switch quickly by simply inserting the cutoff plate in the machine. On the average, the crew laid 150 to 180 tons of mix per hour, for a 9-hour average of around 1,400 tons per day.

The total job of placing 2,520 tons of binder and 1,510 tons of surfacing kept this crew busy for just about three days.

Two Buffalo-Springfield 10-ton tandem rollers compacted the mix behind the paver. A seal coat of American Bitumuls emulsified asphalt was applied by Reed & Graham to the finished pavement at a rate of about 0.10 gallon per square yard to complete the job.

Traveling lube rig

Piazza uses a single big lube rig to service as many as ten spreads scattered over many miles of the area. Built in the company shops, it is probably the most elaborate serv-

(Continued on next page)



Petersen's plant includes the following Lippmann equipment: 10" x 36" primary crusher, 30" x 26" secondary crusher, 4' x 14" four-bearing triple-deck screen, four stationary conveyors, four portable conveyors, classifier, hopper and feeder.



Raymond Petersen

"How we got into production a month sooner than expected"

After 7 years of using a portable plant, Raymond Petersen of Libertyville, Illinois decided to become a "full-time" producer and install a permanent plant. He shopped around... liked the Lippmann proposed layout, and the cost-cutting features of the equipment. Result: He chose Lippmann from hopper to stockpile. As an added "bonus" he went into production a month sooner than expected. Here's how:

Petersen's stockpile area was small and pit floor needed extensive clean up. By using Lippmann portable conveyors with up to 33% shorter wheelbase, Petersen could stockpile higher... double the size of his stockpiles with only 26% increase in radius. Result, he needed smaller stockpile area, far less time for clean-up... started production on April 15th... a month sooner than expected.

Petersen's Lippmann designed plant is operated by one man and handles bank run gravel with up to 6" stones and varying clay content. "It's a real plant," says Ray Petersen, "— maintenance is next to nothing."

LIPPMANN
ENGINEERING WORKS, INC.
MILWAUKEE 14, WISCONSIN

Let Lippmann equipment and engineering know-how help you improve your profit picture.

For more facts, use coupon or Request Card at page 18 and circle No. 304

▼ Petersen uses screen to "scalp" oversize, and spout into Lippmann roll crusher. Conveyor carries crushed product back to screen for resizing.



***** Clip and mail for full facts! Address to: *****

LIPPMANN ENGINEERING WORKS, INC., DEPT. C&E-461
4603 West Mitchell Street, Milwaukee 14, Wisconsin

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Built in the company shops, this lube rig serves as many as 10 of the firm's spreads daily near San Jose. The Utility semitrailer pulled by an International carries diesel and gas tanks; Lincoln and Graco lube, air, and water reels; a compressor; and a generator for small tools and lighting purposes.

(Continued from preceding page)

ice rig on wheels. It is mounted on a Utility 20-foot semitrailer pulled by an International R-190 tandem-axle truck.

On the front of the semi are diesel-fuel and gasoline tanks holding 1,800 and 1,100 gallons, respectively. The fuels feed by gravity to pumps, located on the truck, which are driven by the truck engine through the power takeoff. These pumps deliver the fuel through meters and hose reels mounted at the rear of the trailer.

Seven additional reels dispense oils, greases, water, and air to equipment in the several spreads. Lincoln and

Graco pumps and reels are used. A Quincy air compressor supplies air to operate the pumps, to inflate tires, and for other uses. A Kohler 1,500-watt generator supplies electricity for night lighting and for operating small tools.

On this job, the big lube rig made one short daily stop. While the operators of the paver and rollers were filling their gas tanks, the servicemen gave the machines a thorough lubrication, together with other required daily service. In a matter of minutes, the service was completed, the paving crew was back at work, and the lube rig was on its way to the next spread.

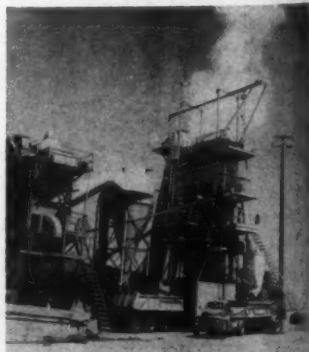
Big new paving plant

The bituminous concrete for the job was mixed in Piazza's new Madsen 6,000-pound batch plant located at the company's headquarters near Almeden Creek in San Jose. The contractor owns some 100 acres of gravel-bearing land along the creek banks and operates a large gravel-processing plant at the site.

In the pit, a Northwest Model 6 shovel loads the raw gravel into Euclid bottom-dumps that haul to the plant. The material goes through a washer and then to stockpiles over a reclaiming tunnel.

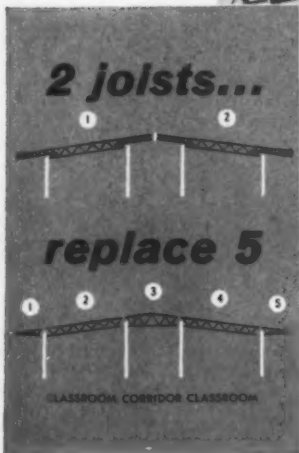
The gravel goes from the stockpile over a scalping screen, and all oversize is shuttled to a Cedarapids 1036 jaw crusher that is followed by two Nordberg and one Telsmith cone crusher. After sizing, the several materials travel by belt conveyors to the plant stockpiles over a 150-foot recovery tunnel.

Feeders and a conveyor in the recovery tunnel deliver the properly graded gravel to the 8 x 36-foot dryer of the Madsen plant. The dryer is fired with natural gas. A very efficient dust-collection system returns practically every particle of dust to the mix so that the exhaust from the stack is nothing but white steam. This is important in a location near residential areas, but Piazza feels that it also pays off in minimizing wear and maintenance on all of the equipment in the area.



The Madsen 6,000-pound batch plant near Piazza's shops has a highly efficient dust-collection system, virtually a necessity in a residential area. Piazza feels it also pays off in reduced wear and lower maintenance. The plant's 8 x 36-foot dryer is a gas-fired unit.

CONTRACTORS AND ENGINEERS



LACLEDE 34' OPEN WEB STEEL JOISTS cut time and cost in new school construction

Ladue Junior High School in suburban St. Louis is an excellent example of the way economy and style can be blended in today's school construction.

Cost saving was a pre-eminent factor in architect William B. Itner's design of this low-flung structure, with its long straight runs, free of costly jogs and bends. Further economy was achieved by allowing the rolling terrain to fall away from the single continuous ridgeline, rather than to follow the contours of the ground with multi-level roofs.

This design concept was based on the selection of open web steel joists as a versatile, economical structural material. Laclede 34' joists, with special shallow-depth ends, were used to provide an unbroken slope from ridgeline to cantilevered overhang, two joists replacing the five structural elements formerly required in this type of roof construction.



General contractor on the project was Kloster Company. Neal J. Campbell was consulting engineer.

6070



LACLEDE STEEL COMPANY

SAINT LOUIS, MISSOURI

Producers of Steel for Industry and Construction

For more facts, use Request Card at page 18 and circle No. 305



Aggregates are supplied by a gravel plant adjacent to the hot-mix setup. The overhead conveyor delivers materials to the finished stockpiles; a belt in the recovery tunnel leads to the plant dryer. The Wagner Scoopmobile is working the stockpile.

Asphalt is delivered to the plant by truck transport and stored in underground tanks with a capacity of 34,000 gallons. These tanks, the asphalt weigh bucket, pipes, etc., are heated with hot oil supplied by an Eclipse boiler fired by natural gas. This entire heating system is automatically controlled and requires only an occasional check or adjustment.

The big Madsen plant is semi-automatic in operation, too. The operator simply pushes the buttons to weigh out, mix, and dump the predetermined mixture.

Personnel

Leo F. Piazza, owner of the firm bearing his name, gives his close personal supervision to many of the job operations. The general manager of the company's construction operations is John Fry. The general superintendent is Ed Barr, and the assistant superintendent is John Sweeney. Stanley Floyd was the paving foreman in charge of the operation in Hallmark Park. Pete Burum handles the big service truck. The inspector for the city of San Jose on the paving project was Lyle Hampton.

THE END

Harnischfeger news

■ Stephen H. Kohl is the new sales promotion manager for the Construction and Mining Division of Harnischfeger Corp., Milwaukee, Wis.

Kohl will be in charge of the development and administration of the division's various sales-promotion programs and dealer cooperative promotions, both domestic and export. He was formerly advertising manager of the Engineered Products Division of the Inland Steel Products Co.

Richard B. Maxson has been promoted to national sales manager for P&H power cranes and shovels, with headquarters in Milwaukee. He has been manager of the Buffalo district since 1957.

Albert B. O'Neal, Jr., has been named to work out of the Buffalo district office. He joined the Boston district office last year as a sales representative.

For more facts, use coupon or Request Card at page 18 and Circle No. 306

APRIL, 1961



GRADES of 20, 30, 40 and 60 per cent test the hill-climbing ability of International Harvester's new, all-purpose vehicle, the Scout. The 4-cylinder, 4-wheel-drive compact is demonstrated for the press at International's proving ground in Phoenix, Ariz. Other machines put through their paces included the new C-line of light-duty trucks and the I-H Travelall.

"Motorola 2-way radio pays for itself in less than a year"



Radio control of widespread operations pays off for Cleveland-Trinidad Paving Co.

What happens when equipment breaks down, or when you need material at the job site? You lose valuable time—perhaps several hours. Not at the Cleveland-Trinidad Paving Co., though. They just pick up the mike on their Motorola 2-way radio—and help is on the way in minutes. Victor Smukler, their General Manager reports that in everyday operations Motorola saves hundreds of dollars in wasted time, gas and oil formerly spent backtracking and phone hunting. He points out that with Motorola, one Supervisor does the work of several just "making the rounds." And customer relations have improved, too—because contractors can get in touch with key personnel fast. You've probably considered 2-way radio for your firm. There's no better time than now to get the facts. A Motorola radio specialist is waiting to help. Mail the coupon today.

Motorola Communications & Electronics, Inc.
Dept. CE-14

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4501 Augusta Blvd., Chicago 51, Ill.

- ☐ Mail me full fact kit on 2-way radio
☐ Have representative telephone for appointment

Name _____ Title _____

Company _____ No. of Vehicles _____

Address _____ Phone _____

City _____ Zone _____ State _____



MOTOROLA 2-WAY RADIO



Work is proceeding in two directions from the bottom of a central shaft for an 8½-mile aqueduct tunnel between Clinton, Mass., and a connection with an existing feeder in Marlboro. Tracks are used by the jumbo drill rig and the diesel locomotive and cars that haul muck from a heading.



Six and 10-foot-long Bethlehem rock bolts are used to support the roof of the aqueduct tunnel. The workman is tightening a 6-foot bolt with a Chicago Pneumatic impact wrench.

Bolts support rock w

Long bolts driven into the rock roof have made other tunnel supports virtually unnecessary during driving operations for an 8½-mile aqueduct tunnel in Massachusetts, and are preventing damage from rock bursts in the 7-mile Mont Blanc Tunnel linking France and Italy.

Aqueduct tunnel

The Boston, Mass., aqueduct, running from the Wachusett Reservoir in Clinton to a connection in Marlboro with an existing feeder, is being built by the joint-venture firms of

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safegua

Perini Co.
Walsh Co.
M. Y.; al
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Transportation problems discussed in new book

■ John Wiley & Sons, Inc., New York, N. Y., has published "An Introduction to Transportation Engineering," by William W. Hay.

The 505-page book deals with the basic principles and problems involved with the movement of goods and persons from place to place.

Part I describes the nature and function of transportation in the present-day world, and also gives the historical development of transport systems and technology. The second part is concerned with the technological factors that affect movement and cost of movement, with emphasis on roadway characteristics. Part III discusses the effects of operating factors such as route and traffic capacity, terminals, coordination, and operational control on transport utility. The final section deals with transportation planning, with emphasis on the economic justification of planning decisions.

The book is available from the publisher at 440 Park Ave. South, New York 16, N. Y. Price is \$11.75.

Chart estimates cost of atomic-hardened buildings

■ A nomograph for computing approximate costs of building atomic-hardened structures is available free of charge from Burns & Roe, Inc., engineering and construction firm of New York City. The 4-color chart and supporting data were derived from records of actual installations.

The nomograph enables architectural and structural engineers to estimate rough costs for rectangular, arch, and dome-type buildings. Length of span for each type of structure and design overpressures are variable parameters used in determining costs with the chart. Instructions in the use of the nomograph, as well as a table describing additional costs per square foot for architectural, mechanical, and electrical services, are included.

A copy of the nomograph or information on designing atomic-hardened structures may be obtained from the Publications Dept., Burns & Roe, Inc., 160 W. Broadway, New York 13, N. Y.

Union Wire Rope

Tough-job "champs"--Union Wire Ropes and Slings keep the



"Real Gone" from Beatings on the Drum

Even under normal operating conditions, drum wear gives wire rope severe punishment. This wear concentrates at the cross-over points and at the flange. Excessive drum crushing results from operating on small drums, excessive loading and poor winding. Smooth drums are not recommended. Here are typical "drum beatings"; cross-over wear; cross-over crushing on drum; drum crushing from poor winding; drum-crushing from small drum.

Although drum wear cannot be eliminated, its effects can be greatly reduced. Under properly engineered procedures, two and three times the service can be obtained from the same line by improving drum conditions. Union Wire Rope Engineers will help you with this problem.

On the "Blink" from a Kink

This open kink resulted from mishandling of rope and of the line. Guard against kinks by proper winding on the drum. Never pull a loop smaller. Always enlarge it, then straighten out the rope.

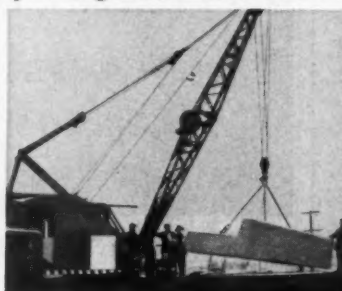


Each Union Tuffy is Engineered to Meet a Different Tough Job



Tuffy Scraper Rope

Flexible enough to take sharp bends; stiff enough to resist looping and kinking when slack; highly resistant to the shock of load impact—that's Tuffy balanced construction. Mount a reel on your scraper—save wasting sound rope.



Tuffy Slings and Hoist Lines

Slings are a patented, 9-part machine-braided wire fabric that is next to impossible to knot or kink. Hoist lines have built-in strength, toughness, flexibility. Balanced—a top-performing team for handling every type of material. In addition to Tuffy, Union Wire Rope furnishes a complete line of slings.



Tuffy Dozer Rope

Mounts right on your dozer in a 150' reel. When rope shows wear, just feed through enough to replace the damaged part. Saves rope, gives you a bonus of extra service. Also available in 300' and 500' reels.



Look to the Union Wire Rope Organization for "Right Rope" Service. Union has more than 1600 standard constructions, plus the special Tuffy family of wire ropes and slings tailored to exacting special needs. For many years people with special wire rope needs have been coming to Union for help. That's the way the Tuffy family grows. Our research laboratory is at your service. If we don't already have it, we'll design and fabricate just the rope or sling you need. And you'll be sure of Union strength, Union flexibility, Union job-tested quality. Call your Union distributor—see the phone book Yellow Pages.

work progresses on tunnel jobs

Bolting is main support in Massachusetts aqueduct; safeguards against rock bursts in Mont Blanc Tunnel

Perini Corp., Framingham, Mass.; Walsh Construction Co., New York, N. Y.; and the Morrison-Knudsen Co., Inc., Boise, Idaho. (See "Site Preparation Smooths Way for Aqueduct Tunnel," C&E, August, 1960, page 114.)

This 17½-foot-diameter tunnel is being driven in two directions from a central 280-foot-deep shaft at South Berlin. Driving is carried on simul-

taneously in both headings, three shifts a day, six days a week. Each heading crew generally completes two cycles of work during its shift. A cycle includes drilling, installing mine roof bolts, loading, shooting, mucking, and moving utilities forward.

The 6 to 10-foot-long, ¾-inch-diameter, high-tensile-strength steel Bethlehem roof bolts are placed in

Rock in the Mont Blanc Tunnel, linking France and Italy, proved so friable at 2,625 feet that crews had to advance by means of a heavily timbered pilot tunnel. Here, drilling and blasting were abandoned for the pick-and-shovel method.

drilled holes in the upper part of the tunnel. The inner end of each bolt is equipped with an expansion shield, which, when the bolt is tightened to a minimum of 200 foot-pounds, enables



the bolt assembly to create a beam action in the rock and prevent slipping and falling.

Each pair of bolts is connected by a 54-inch steel strap. These assemblies are placed on 5-foot centers laterally in alternate rows of five and four; in a longitudinal direction, the assemblies are spaced 2 feet 6 inches apart.

Blast-hole drilling is accomplished with 7 Gardner-Denver CF123's mounted on a jumbo, supplemented by an Ingersoll-Rand DH500 down-the-hole type of drill. A typical drill round consists of 52 holes 12 feet in depth. The blast holes are started with 6-foot drill steels; only one change is required to complete a round. Carbide-insert bits of 1¼-inch diameter finish the job.

Each blast, in which approximately 450 pounds of Hercules Gelamite 1 is fired, produces about 160 cubic yards or 25 carloads of muck. Six-car trains of 7-cubic-yard side-dump cars are hauled back to the central shaft, where the muck is transferred to a 13-cubic-yard skip—an integral part of the underside of the elevator cage—and raised to the surface. Here it is dumped into a 100-cubic-yard hopper and hauled by a Euclid 22-ton rear-dump to the spoil area half a mile away.

Holing through to the shafts at Clinton and Marlboro, both four miles away from the central shaft, is expected late in July. Concreting the tunnel's liner to a finished diameter of 14 feet is planned for completion by September, 1962.

Mont Blanc Tunnel

Work on the Mont Blanc Tunnel, a vehicular tube that will link France and Italy, has progressed some 8,250 feet from the Italian side, since operations began in January, 1959. (See "Tunnel Men Take on Mont Blanc," C&E, July, 1959, page 66.)

During this time, many difficulties hindered the work. After the contractors had advanced 1,207 feet into the mountain, water poured into the tunnel from the working face and flooded the heading. At 1,644 feet, the nature of the rock deteriorated, and a heavy fall smashed the drill jumbo. It was necessary to change from the full-face to the top-heading method of tunneling. At 2,625 feet, a second fall of rock forced the crews to advance by means of a heavily timbered pilot tunnel, which was enlarged by sections to permit completing excavation of the top heading. Here, drilling and blasting had

Tuffy Tips

Slings keep the title longer with proper handling.



Burned on a Frozen Sheave

of rope of the line came quickly for this rope as the result the drum operating over a sheave that did not turn. Note the exceptionally heavy abrasion on one side of the rope. If it, then leaves should be checked thoroughly and often.



How to Measure Rope Diameter

To get the most service, efficiency and safety out of wire rope operation, rope and sheaves must be precisely fitted to each other. There's only one right way to measure rope diameter: use machinist's calipers and be sure to measure the widest diameter.

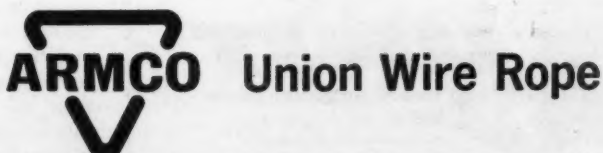
A slight shift of the rope in the calipers, as shown above, will give you a misreading which would result in ordering an undersize rope. Note that the measurement at right shows ⅛" under correct diameter. Be sure to double-check every time!

Union Wire Rope Handbook of TUFFY TIPS... Free!

The "Tuffy Tips" shown here are quoted right out of Union's handbook. In it there are dozens of other priceless hints on the correct use of wire rope. The common abuses and how to avoid them. How to save costly injuries. Maintenance tips. The proper fittings and how to apply them. Recommended sizes. Many other facts and suggestions that will cut down your rope costs and help you get out of wire rope the full service we build into it. No charge. Write Union Wire Rope, Armco Steel Corporation, 2260 Manchester Ave., Kansas City 26, Missouri.



2-61



For more facts, use Request Card at page 18 and circle No. 307

Because of rock bursts, which cause masses of rock to explode from the roof of the 31-foot-high Mont Blanc Tunnel, expansion bolts and steel netting are installed for protection from rock falls. Here a workman drills a hole for one of the 7-foot-long bolts that hold the netting in place.



"UNIT offers a buyer the most for his money"

H. E. STRUTHERS
ST. PETERSBURG, FLORIDA

This veteran excavating contractor speaks from profitable experience—he has owned five UNIT machines, and is currently running two ¾-yd. draglines. "I've been a consistent purchaser of UNIT machines," Mr. Struthers says, "because they offer a buyer the most for his money in regards to work capability, low cost of operation, and the great ease with which the machines can be lubricated and repaired."

There are many good reasons why a UNIT gives you more for your money. *Direct-in-line drive* from engine to main machinery is one. This simple, highly efficient power transmission system contributes substantially to a UNIT'S on-the-job performance by delivering power directly to the point of action with low friction loss.

UNIT'S *exclusive one-piece main machinery gear case* is another reason. All gears, shafts and bearings are sealed in this housing . . . operate continuously in oil . . . are positively protected against dirt and abrasives. Routine lubrication is easily handled with conveniently grouped fittings provided for all parts requiring greasing.

And, ready accessibility to main machinery makes your operator or mechanic more maintenance-minded . . . eases servicing. Convenient sliding side panels and easily lifted hood covers make it easy to get at various machinery parts. Broad platform walkways on both sides make it especially easy to service the machine.

For a full rundown on UNIT features, contact your nearby dealer now. He handles UNIT excavators in sizes from ½- to 1-yd., crawler cranes from 6- to 22-ton capacity, and 10- to 40-ton truck cranes.



UNIT
UNIT CRANE & HOVEL CORP.
6309 W. Burnham Street
Milwaukee 19, Wisconsin

3061

For more facts, use Request Card at page 18 and circle No. 308

(Continued from preceding page)

to be abandoned for the pick and shovel because of soft rock conditions.

At 4,278 feet, the formation altered to solid granite. Returning to the 2,625-foot point, contractors excavated the bench to the point where full-face driving could be resumed.

Advance was soon slowed, however, by "rock bursts," sudden explosions caused by the rapid decompression of the rock following the opening of the 925.7-square-foot tunnel area.

Roof bolting was immediately installed. Seven-foot bolts with expansion heads were used to tie together the various rock strata forming the tunnel roof. Five bolts were installed per square yard. As rock bursts increased in frequency, lengths of steel netting were bolted to the roof with the expansion bolts to hold back loose rock.

At 6,890 feet, rock bursts increased, and a pilot tunnel was driven to reduce rock stresses in the tunnel face. Excavation of the main tunnel went on simultaneously with that of the pilot tunnel, but about 33 feet behind it.

A flexible drilling system enabled these frequent changes in the method of advance to be made at low cost. Lightweight but powerful high-speed drills mounted on pneumatic pusher legs are one-man operated from the decks of a drilling platform.

Conditions have improved enough to permit advancing in full section, but roof bolts and protective netting are still being used for safety.

Roof and walls have been fully lined with concrete for more than a mile from the Italian entrance. The finished internal section is 775 square feet. Widening of an existing access road is continuing outside the tunnel.

THE ENR

Connecticut toll booths floodlighted, painted

■ Work is currently under way to floodlight and brilliantly paint all toll booths on the Connecticut Turnpike.

The emergency action was undertaken by the Connecticut State Highway Department after a heavy weekend fog that was blamed for several toll-station accidents.

As added safety measures, the approaches to the toll stations will be painted with wide stripes, and revolving beacons will be installed on the canopies.

Sverdrup & Parcel changes name

■ Sverdrup & Parcel Engineering Co. of San Francisco, Saint Louis, and Washington, D. C., has changed its name to Sverdrup & Parcel and Associates, Inc., in order to better reflect the nature of the organization, which provides architectural as well as engineering services.

The change in name in no way affects the management, ownership, policies, personnel, contracts, or obligations of the company.

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Convention Calendar

April 4-5 Earthmoving Industry Conference
Twelfth annual conference, Pere Marquette Hotel and Madison Theatre, Peoria, Ill. Irwin Joslin, publicity chairman, EIC, P. O. Box 973, Peoria, Ill.

April 4-6 Ohio Highway Engineering Conference
Conference, Ohio State University, Columbus, Ohio. Emmett H. Karrer, professor of highway engineering, Ohio State University, 2036 Neil Ave., Columbus 10, Ohio.

April 4-6 New York State Association of Highway Engineers
Meeting, Hotel Statler Hilton, Buffalo, N. Y. Edward W. Umiker, general chairman, NYSAHE, Box 12, Niagara Square Station, Buffalo 1, N. Y.

April 6-16 International Construction Exhibition
Third International Exhibition, Exhibition Grounds, Porte de Versailles, Paris, France. Exhibition Secretariat, ICE, 1, Avenue Neil, Paris 17, France.

April 10-14 American Society of Civil Engineers
Phoenix convention, Hotel Westward Ho, Phoenix, Ariz. Otis D. Gouty, assistant to the secretary, ASCE, 33 W. 39th St., New York 18, N. Y.

April 10-14 Greater New York Safety Council
Thirty-first Annual Safety Convention and Exposition, Hotel Statler, New York, N. Y. William Farley, GNYSC, 60 E. 42nd St., New York 17, N. Y.

April 17-21 American Welding Society
Forty-second annual convention and Welding Exposition, Commodore Hotel and the Coliseum, New York, N. Y. Arthur L. Phillips, secretary of information and education, AWS, 33 W. 39th St., New York, N. Y.

April 18-20 South Dakota Highway Short Course and Bituminous Conference
Course, Union Bldg., South Dakota State College, Brookings, S. Dak. Emory E. Johnson, SDHSC, South Dakota State College, Brookings, S. Dak.

April 23-26 Canadian Association of Equipment Distributors
Annual meeting, Hotel Vancouver, Vancouver, B. C., Canada. A. MacNamara, managing secretary, CAED, 409 Journal Bldg., 247 Queen St., Ottawa, Ont., Canada.

April 23-28 Western Association of State Highway Officials
Fortieth annual convention, Flamingo Hotel, Las Vegas, Nev. Nevada Department of Highways, Reno, Nev.

April 27-29 Texas Aggregate Association and Texas Ready Mix Concrete Association
Meeting, Robert Driscoll Hotel, Corpus Christi, Texas. Ray L. Cain, executive secretary, TAA and TRMCA, 201 Perry Brooks Bldg., Austin, Texas.

April 28 Conference for Engineers and Architects
Conference, Mershon Auditorium, Ohio State University, Columbus, Ohio. Marion L. Smith, associate dean, College of Engineering, Ohio State University, 140 W. 18th Ave., Columbus 10, Ohio.

May 5-6 American Institute of Steel Construction
Twelfth annual national engineering conference, Brown Palace Hotel, Denver, Colo. William C. Brooks, director of publicity, AISC, 101 Park Ave., New York 17, N. Y.

May 8-10 Highway Transportation Congress
Ninth congress, Mayflower Hotel, Washington, D. C. Arthur C. Butler, director, National Highway Users Conference, 966 National Press Bldg., Washington 4, D. C.

May 22-24 Construction Specifications Institute
Fifth annual convention, Commodore Hotel, New York, N. Y. Ronald S. Byner, executive secretary, CSI, 632 Dupont Circle Bldg., Washington 6, D. C.

May 22-25 Design Engineering Conference of the American Society of Mechanical Engineers
Conference, Cobo Hall, Detroit, Mich. Robert M. Baldini, assistant manager, ASME, 29 W. 39th St., New York 18, N. Y.

May 24-27 National Rivers and Harbors Congress
Forty-eighth national convention, Mayflower Hotel, Washington, D. C. William H. Webb, executive vice president, NRHC, Suite 523-A, La Salle Bldg., 1028 Connecticut Ave. N.W., Washington 6, D. C.

May 29-30 Wire Reinforcement Institute
Annual meeting, The Greenbrier, White Sulphur Springs, W. Va. Frank B. Brown, managing director, WRI, 1049 National

Press Bldg., Washington 4, D. C.

May 29-June 3 Concrete Reinforcing Steel Institute
Meeting, The Greenbrier, White Sulphur Springs, W. Va. H. O. Delsell, managing director, CRSI, 38 S. Dearborn St., Chicago 3, Ill.

June 12-13 National Limestone Institute
Board meeting, Sheraton Blackstone Hotel, Chicago, Ill. Robert M. Koch, president, NLI, 210 H St. N.W., Washington 1, D. C.

June 12-23 Fundamentals of Welding Engineering
Summer conference course, Ohio State University, Columbus, Ohio. W. L. Green, course supervisor, Department of Weld-

ing Engineering, 190 W. 19th Ave., Ohio State University, Columbus 10, Ohio.

June 15-30 and June 18-23 Management Development Conferences
Conferences, California Institute of Technology, Pasadena, Calif. Industrial Relations Center, 1201 California St., Pasadena, Calif.

June 19-22 The Asphalt Institute
Midyear business meeting, Denver-Hilton Hotel, Denver, Colo. D. L. Knott, Asphalt Institute Bldg., University of Maryland, College Park, Md.

June 25-30 American Society for Testing Materials
National meeting, Chalfonte-Haddon Hall, Atlantic City, N. J. ASTM, 1916 Race St., Philadelphia 3, Pa.



Now! Best Skil saw models in 36 years!

with new "Burnout Protection" motors, backed by full year FREE service policy!

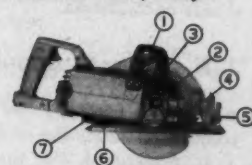
Take it from us—you simply can't afford not to use these newest versions of world famous Skil worm-drive saws, they're that much better!

12 major improvements. To start with, we took the finest Skil power saws ever made (the 6½" Model 367, 7¼" Model 77 and 8¼" Model 825) and gave them new B-P motors that give "Burnout Protection" even during frequent, excessive overloads. Next, we made oil level control and oil pressure relief automatic. Then we added a new airflow

hood for better cooling, and the convenience of an easier-to-read bevel gauge and a telescoping blade guard that can't bind even on trickiest miter cuts.

The list of improvements goes on and on to make these, unquestionably, the finest saws ever to carry the name "Skil saw" . . . and that's saying a lot!

Ask your Skil distributor for more information, today. Look under "Tools-Electric" in the Yellow Pages. Or write: Skil Corporation, Dept. 107C, 5033 Elston Avenue, Chicago 30, Illinois.



(1) New plastic-covered top handle for cooler handling. (2) Automatic oil level control. (3) New air flow hood. (4) Push-button blade lock. (5) Easy-to-read bevel gauge. (6) Stronger steel foot. (7) New sawdust ejector system.



...and SKILSAW POWER TOOLS

For more facts, use Request Card at page 16 and circle No. 309

Names in the News

National Constructors elects new officers

The National Constructors Association, Washington, D. C., has elected a new slate of officers.

New president is H. E. Lore, manager of the machinery division of Dravo Corp., Pittsburgh. George Collins, vice president of the Lummus Co. of New York, was elected vice president of the association.



H. E. Lore, president, and George Collins, vice president of the National Constructors Association.



The following were elected members of the executive committee: L. H. Oppenheim, vice president and general manager of Kaiser Engineers; Walter F. Oleksiak, vice president of United Engineers & Constructors, Inc.; A. Russell Young, vice president and general manager of J. F. Pritchard & Co.; and William R. Frederick, vice president of Chemical Construction Corp.

Joseph Hand was re-elected chairman of the association's labor committee, and B. O. Yedell is vice chairman. Other committee chairman are: Eric Muller, labor cost committee; George Aro, safety committee; Phil Lyon, international committee; and John E. Quinn, committee on public affairs.

New T. Y. Lin office headed by Kulka

T. Y. Lin & Associates, Van Nuys, Calif., consulting structural engineering firm specializing in prestressed concrete, has named Felix Kulka to head a new San Francisco Division office.

Kulka, an associate of the firm since 1955, has been active in the design of thin shells, and of prestressed-concrete multistoried structures, particularly in the use of lift slabs. He is presently representing the firm as consultant to Anshen & Allen, San Francisco architects, on the projected parking structure for the University of California.

J. H. Pomeroy appoints

Joseph A. McHenry has been appointed assistant vice president of J. H. Pomeroy & Co., Inc., general contracting and engineering firm of San Francisco.

McHenry, an officer in the Civil Engineer Corps of the U. S. Navy for more than 20 years, served as district civil engineer and district public works officer in the 11th Naval District, San Diego, just prior to his retirement in February.



Charles R. Wing, vice president and southwest district manager of The Austin Co., Cleveland, Ohio.

Austin Co. news

Charles R. Wing and Edmund W. Hollister have been elected vice presidents of The Austin Co., Cleveland, Ohio.

Wing is manager of the engineering and construction firm's southwest

district, with headquarters in Houston, Texas. In this position, he has been in charge of coordinating work on production, research, and distribution facilities for chemical, cement, petroleum, and other process industries and retailing firms.

Hollister has been manager of the company's 12-state Cleveland district for the past year.

Edward C. Baker has been ap-

E. W. Hollister, vice president and Cleveland district manager of The Austin Co.



pointed district engineer of the Chicago district. He succeeds George H. Miller, who is now project manager on a special assignment in the northwest district.

Loren C. Miller is assistant manager of the Chicago district. He has been works manager of the Steel Fabricating Division in Cleveland.

Fred A. Clear is the new assistant district manager of the firm's Cleveland district. He formerly served as district construction superintendent in Cleveland.


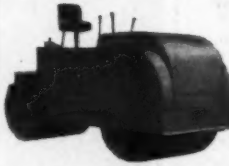

BTEA '61 officers

I. Roy Psaty, president of Psaty & Fuhrman, Inc., construction firm of New York City, was recently elected to his second term as president of

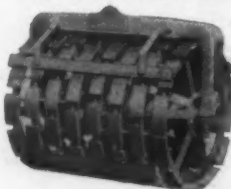
Kompactor averages 3,000 lineal feet per day compacting 6-inch soil-cement base on road paving project.



A ROLLER THAT'S JUST RIGHT FOR YOU!

	 Small tandems	 Two-axle tandems	 3-wheel rollers
Capacities	3-5 TON TANDEM 4-6 TON PORTABLE	5- 8 TON 8-10 TON 8-12 TON 10-14 TON	10-14 TON 12-15 TON
Type of compaction best suited for	Roll and run jobs — driveway, parking lot and playground work. Patching, light finishing.	Heavy-duty surface finishing of asphalt. Sealing off fill surfaces. Compacting granular soils.	Fine grade finishing. Handle a variety of materials in fills, subgrades, and unfinished bituminous pavements.
Outstanding Features	Two speed mechanical transmission. Hydraulically powered towing wheels on 4 to 6 ton Portable.	Dual control. Adjustable bevel gear final drive. Single unit power train. Low maintenance.	Heavy-duty power brakes. 4-Speed transmission. Easy access to all working parts.

Segmented roll for Buffalo-Springfield Tandem Rollers provides 3 to 7% higher compaction densities.



A quick change of guide rolls on any big Buffalo-Springfield tandem roller can give you up to 7% higher compaction densities on stabilized base materials, crushed stone, earth fills, etc. You get the special advantages of a projecting-lug roll, plus those of a smooth-faced roll in a single pass — at very low cost!

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the Building Trades Employers' As-
sociation, New York, N. Y.

Also re-elected were Jack W. Zucker
of The Shatz Painting Co., vice presi-
dent; Nicholas B. O'Connell, Turner
Construction Co., second vice presi-
dent; Jeremiah Burns, Jeremiah
Burns, Inc., third vice president; and
Edward J. Fee, Starrett Bros. and
Eken, Inc., treasurer.

Turner vice president

Robert P. Marshall, Jr., has been
elected a vice president of Turner
Construction Co., New York, N. Y.

Marshall has served in Turner's
contract department since 1953. In his
new post, he will be responsible for
obtaining business in the New York
area.



Charles F. Dalton,
president, John
Lowry, Inc.

John Lowry elects

The board of directors of John
Lowry, Inc., building concern of New
York, N. Y., recently elected John
Lowry chairman of the board and
Charles F. Dalton president.

Lowry, the former president,
founded the firm over 53 years ago.

Dalton has been with the Lowry
organization since 1934. Prior to his

election as president, he was vice
president of the firm.

John Lowry, Jr., vice president, will
assume new duties in administration
and field operations. He succeeds
Dalton as secretary of the firm.

New senior engineer at Ford, Bacon & Davis

George A. Sargent has joined Ford,
Bacon & Davis, Inc., engineering and
management consultant firm of New
York City, as a senior engineer.

Sargent was previously production
manager in charge of three plants of
the Atlantic Prestressed Concrete Co.,
a division of the Warner Co. Before
that he served for more than 20 years
in various executive positions with
the Pennsylvania Railroad.

Corps appointments

■ Col. Edward T. Podufaly has been
named Eastern Ocean District engi-
neer for the Army Engineers off-shore
installations, with headquarters in
New York. He succeeds Col. James G.
Hogle, acting district engineer since
last fall.

Col. Warren S. Everett has been
appointed district engineer for the
Corps at Vicksburg, Miss. He formerly
served overseas as director, U. S.
Army Construction Agency, France.



Milton L. Reay,
chairman of the
Arizona State
Highway Commis-
sion, Phoenix.

Arizona highway chairman

Milton L. Reay is the new chairman
of the Arizona State Highway Com-
mission, Phoenix, Ariz. He replaces
F. L. Christensen, who has retired.

The commission also named John
Bugg as vice chairman and installed
Arthur F. Black as a new member.

PCA names engineer

The Portland Cement Association,
Chicago, Ill., has appointed Harold W.
Hansen senior planning engineer of
the paving bureau.

Hansen, a civil engineer for more
than 20 years, has been with the asso-
ciation since November, 1960. Just
prior to that, he was with the Auto-
motive Safety Foundation, in charge
of a state-wide study of roads and
streets in Iowa.



C. S. Davis, ex-
ecutive vice presi-
dent for foreign
operations, the
Perini Corp.

Perini appoints head of foreign operations

C. S. Davis is the new executive vice
president for foreign operations of
Perini Corp., Framingham, Mass.;
Perini Ltd.; and Perini Quebec, Inc.
He has also been named managing
director of Perini International A. G.
He will have responsibility for Perini's
current overseas projects, as well as
the development of future business
for the company.

Davis was formerly general vice
president for construction with the
Utah Construction Corp., San Fran-
cisco.

Missouri highway news

J. J. Corbett is the new chief engi-
neer of the Missouri State Highway
Commission. He had been assistant
chief engineer since 1956.

Corbett succeeds Rex M. Whitton,
who is now Federal Highway Admin-
istrator in Washington, D. C.

How to Pick COMPACTION EQUIPMENT That Best Fits Your Needs

No matter how complex your problems are,
you can buy with confidence from Buffalo-
Springfield. Compaction is our business. Our
line is most complete. And with a wealth of
past experience to draw on, we can help you
pinpoint the most profitable compaction piece

to fit your particular needs. Talk it over with
a Buffalo-Springfield man soon. Let him show
you how to make your compaction dollar meet
density specs in fewer passes . . . with less main-
tenance and downtime. Ask your Buffalo-
Springfield man for complete information.



3-axis tandems

13-20 TON

Asphalt finish-rolling. Sealing
fill surfaces. Compacting granu-
lar soils, stabilized base courses.

Walking beam control for extra
compactive effort. Hydraulic
control for raising center roll.



Vibratory roller

15-21 TON

Compacting base course, sur-
face sealing, and ideal for a
large variety of granular base
material compaction problems.

Delivers 1500 to 2200 vpm. All
vibratory effort is exerted down-
ward for greater density in
deeper lifts.



Kompaactor

K-45 . . . 16 TON

Handles wide variety of mate-
rials in base fill compaction,
at high speed.

Segmented wheel roller. Works
on interrupted pressure prin-
ciple. Delivers higher densities
in fewer passes.



Pneumatic Rollers

3-10 TON
10-30 TON

Heavy duty force account com-
paction. Compacted embank-
ment work. All types of soil.

All wheel oscillation. Torque
converter drive. Power steering
and brakes. 3-Speed transmis-
sion.

Write for bulletin on the compaction equipment of your choice or see your distributor soon.

BUFFALO-SPRINGFIELD CO.

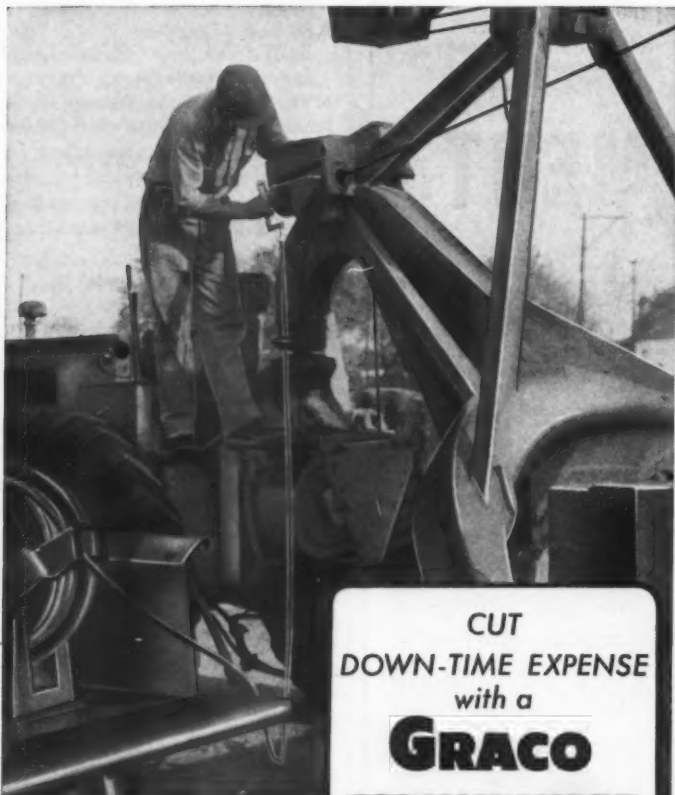
Springfield, Ohio

A Division of
KOEHRING
Company

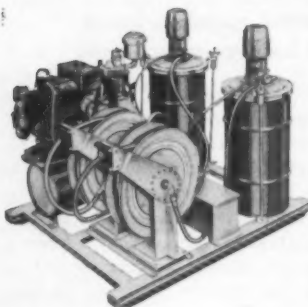
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For more facts, use Request Card at page 18 and circle No. 310

A 63-FOOT-LONG SPAN JOIST weighing 3,500 pounds is loaded at Standard Iron & Wire Work, Inc.'s yard in Minneapolis, Minn., by a Unit-Coles mobile crane equipped with a 30-foot boom. All yard handling and loading of the company-built joists is done by this crane.



**CUT
DOWN-TIME EXPENSE
with a
GRACO
CONVOY LUBER**



FREE! Graco Idea Book describes and illustrates typical equipment arrangements, gives specifications, explains how to "job plan" your lube truck. Send for your copy today!

Every minute you spend maintaining your equipment costs you money! That's why it will pay you to investigate a Graco Convoy Luber.

Designed for on-the-spot lubrication... these lubers work to provide fast greasing, oiling and air service in the field.

You pump lubricants direct from original shipping drums... save equipment transportation time... cut costly breakdowns drastically by maintaining around-the-clock lubrication service.

With Graco on the job, preventative maintenance can be fast and systematic... and scheduled lubrication of equipment means longer equipment life, less down-time.

Graco Convoy Lubers are available in many sizes and any combination of reels, pumps, compressors, or hoses. See your Graco dealer today for more details on the combination to meet your job requirements.

GRACO
ENGINEERS AND MANUFACTURERS

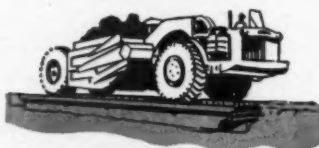
GRAY COMPANY, INC.

447 Graco Square
Minneapolis 13, Minnesota

For more facts, use Request Card at page 18 and circle No. 311

**Cut Maintenance Costs
in the
CONSTRUCTION
INDUSTRY**

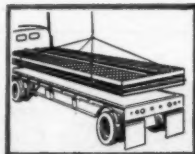
with **MURPHY
Cardinal**
**all-steel
INDUSTRIAL
SCALES!**



**PORTABLE—HEAVY-DUTY
MOTOR TRUCK SCALES**

The high tensile strength of steel, and modern design simplicity—built from the ground up give lower installation costs and maintenance free operation.

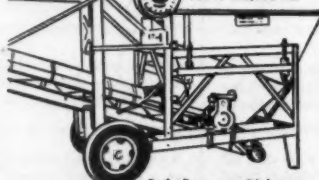
- ★ TANDEM CONNECTED UNITS
- ★ SPLIT FRAME UNITS
- ★ SINGLE UNITS
- ★ CAPACITIES TO 100 TONS



Two types of decks offered—Checkered Steel Plate Runway or Timber decks. Easily transported—just remove a few bolts.

For Portable Plant Use—

**Cardinal
HOPPER
SCALES**
500 to 100,000 lbs.



Both Beam or Dial type available with manual, semi-automatic or fully automatic operation. Adaptable for any hopper.

- ★ Most delivery 10 days ★ NATIONWIDE SERVICE
- ★ Scales Custom made to your specifications

**WRITE FOR INFORMATION
AND PRICES TO**



For more facts, circle No. 312

B. F. Goodrich installs new computer system

■ B. F. Goodrich Co., Akron, Ohio, recently completed an electronic data-processing system as part of a national mechanization program to improve communication and control over its domestic sales and manufacturing operations.

Two solid-state IBM units, a 7070 and a companion 1401, have been installed in Akron headquarters. These computers will be used in all major applications related to sales activity—forecasting, inventory, distribution, sales analysis, and accounting—and will make possible centralized control of operating and scientific functions for other divisions.

An operations research staff has been organized which will use the 7070 to help all divisions on complex problems.

Scientific Russian text

■ A new revised edition of "Scientific Russian," by James W. Perry, has just been published by Interscience Publishers of New York and London. This 565-page textbook for classroom, self-study, or reference use has been completely reset for improved legibility over its 1950 first edition.

The importance of a reading knowledge of Russian has been enhanced by the recent availability of much scientific and technical material in books and periodicals reaching us from the USSR, and by exchange visits of engineers and technicians.

The book is divided into 40 lessons that include reading and translation exercises. These exercises discuss scientific or technical topics in order to retain the reader's interest. Idioms and abbreviations are well covered. Both Russian-English and English-Russian vocabularies of considerable scope conclude the text, along with an ample index.

A rank beginner can get off to a good start with this book by following the author's advice in the introduction, particularly the section "Notes on Study Methods." The student is shown early the many similarities between the Russian and English languages, and the treatment of grammar is well handled throughout the book. It is probably the best tool of its kind for anyone, with or without a teacher, to acquire a reading knowledge of Russian scientific and technical papers.

Priced at \$9.50, "Scientific Russian" may be obtained from Interscience Publishers, Inc., 250 Fifth Ave., New York 1, N. Y.

Austin-Western names district service manager

■ Norval O. King has been named district service manager for Austin-Western, construction equipment division, Baldwin-Lima-Hamilton Corp., Aurora, Ill. King will handle a territory including Wyoming, Colorado, and New Mexico, servicing all divisions of A-W equipment, including power graders, hydraulic cranes, rollers, and roller-compactors.

CONTRACTORS AND ENGINEERS

PRODUCT PARADE

For further information on any of the products described in the following section, circle the designated number on the Request Card at page 18.

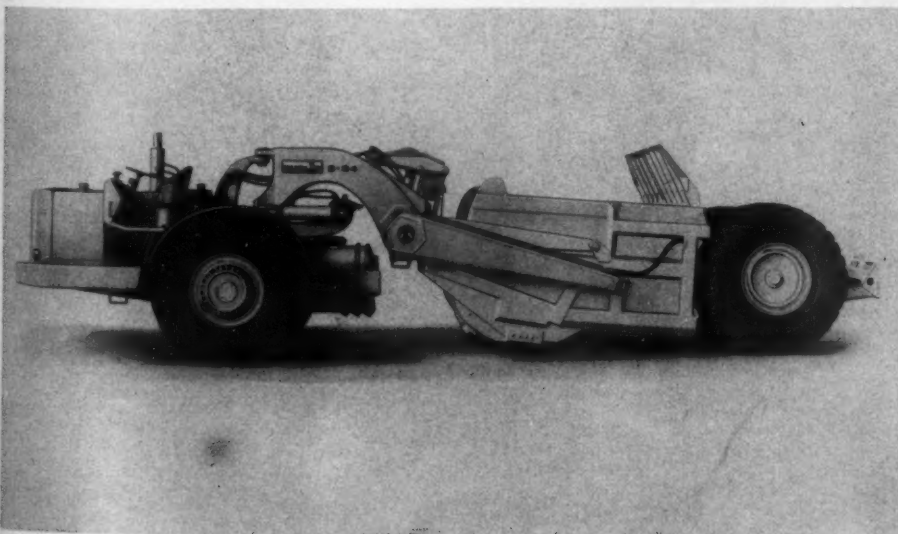
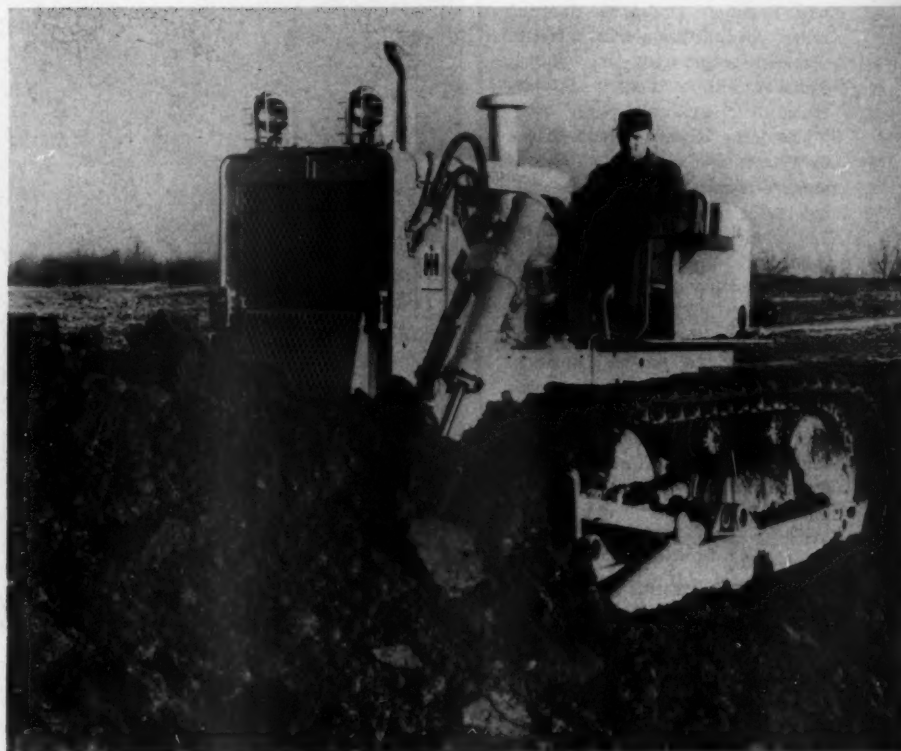
New 140-hp tractor is turbocharged unit

A new 140-hp crawler tractor, the TD-20, is announced by International Harvester Co. This second largest in the I-H crawler line is said to have impressive working power due to its turbocharged engine.

Equipped with an International DT-691, 6-cylinder turbocharged diesel engine, the unit develops 140 engine horsepower at 1,560 rpm. Equipped with a 6-speed, full-reverse transmission, it has a drawbar horsepower of 113. Shipping weight is 29,685 pounds.

A 50 per cent increase in torque rise to handle larger overloads is accomplished through use of all-altitude, modern turbocharging, the company reports. Its new dry-type air cleaner has a 99.8 per cent efficiency in filtering the increased air volume carried into the TD-20's engine by the turbocharger.

Write to International Harvester Co., Dept. C&E, 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 90.



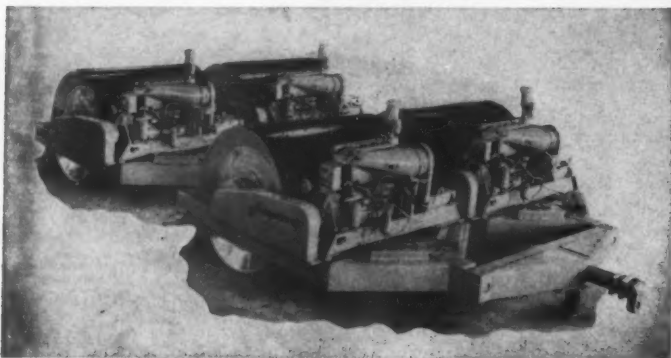
Scraper carries 24 yards struck

The Euclid Division of General Motors announces a new overhung-engine-type scraper of 24-yard-struck capacity.

The Model S-24 is powered by a GM 12 V-71 engine of 432 horsepower with dry-type air cleaner, and Allison Torqmatic transmission with converter lockup and a splitter gear that provides a total of nine speed and power combinations. Tires are 27.00 x 33, 30-ply, on 22-inch rims.

Steering is fully hydraulic with a 2-jack system and 90-degree swing. Wheelbase is 27 feet 7 inches; over-all length, 42 feet 4 inches. Width of cut is 10 feet 3 1/2 inches. All scraper operations are hydraulically controlled.

Write to the Euclid Division, General Motors Corp., Dept. C&E, 1361 Chardon Road, Cleveland 17, Ohio, or use the Request Card at page 18. Circle No. 13.



Four Ferguson Model 65 vibrating rollers arranged in tandem for compacting fill. One tractor pulls the four.

New vibrating roller cuts service costs

Shovel Supply Co. announces its new Ferguson Model 65 vibrating roller. The unit has a drum 5 feet in diameter and 6 feet long, and is equipped with a Deutz 60-hp air-cooled diesel engine.

The large eccentric shaft, driven by V belts, revolves at 2,300 rpm to produce tremendous impact, according to the manufacturer. The drum and vibrating mechanism are insulated from the frame and engine by large rubber "doughnuts" specially designed for long wear. The engine is mounted on specially designed rubber insulators for further protection.

A feature of the new roller's design is that the bearings and moving parts run in a continuous oil bath, thus eliminating lubrication troubles often encountered with vibrating rollers.

The single-drum unit weighs 11,000 pounds.

For further information write to the Shovel Supply Co., Inc., Dept. C&E, P. O. Box 1369, Dallas 21, Texas, or use the Request Card at page 18. Circle No. 52.

A heat-jacketed pump for asphalt distributors

E. D. Etnyre & Co. has announced the development of a new heat-jacketed pump for its Black-Topper bituminous distributors.

This new pump is heated from engine exhaust, which is directed into ducts in the jacketed pump case surrounding the pump impellers. The hot air is then directed to the intake valve above the pump after passing through ducts in the pump case.

With a capacity of 400 gpm, the pump has 4½-inch suction on top and 4-inch discharge at bottom and thus is self-draining, with no low points to trap material and prevent it from flowing straight through. The pump has 9-tooth staggered "herringbone" impellers and a heavy-duty pump case. Steel shafts are chrome-nickel and heat treated and ground.

For further information write to E. D. Etnyre & Co., Dept. C&E, 200 Jefferson St., Oregon, Ill., or use the Request Card at page 18. Circle No. 48.

Hose "bounces back" when crushed by tires

A water-suction hose designed especially for use where hose is subject to damage from truck movements is offered by The Goodyear Tire & Rubber Co.

Called Rebound because it is said to spring back to its original shape even when flattened, the hose is produced in lengths to 50 feet and in 1½ to 3-inch inside diameters.

According to the company, the shape of the hose is maintained by a specially treated rope helix em-

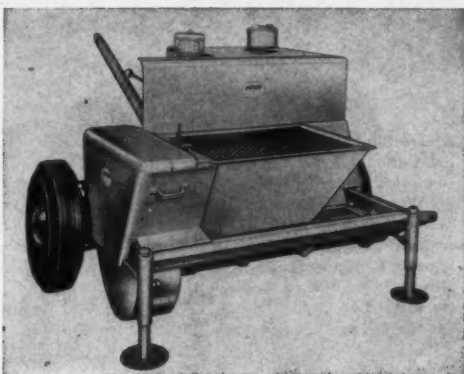
bedded in heavy rubber between two plies of fabric reinforcement. The helix also prevents collapse of the hose at high vacuum. The interior tube is a nonporous rubber compound that reportedly resists action of sand and grit and is impervious to mildly acid or alkaline water.

For further information write to The Goodyear Tire & Rubber Co., Dept. C&E, 1144 E. Market, Akron 16, Ohio, or use the Request Card at page 18. Circle No. 50.



AMSCO helps you handle more tons per dollar

Airplaco's new portable Uni-Cretor performs four different concrete-placing and grouting jobs.



Concrete-placing rig performs four operations

A new concrete-placing machine, the Uni-Cretor, has been announced by the Air Placement Equipment Co.

The new unit is described as an all-purpose, high-production pneumatic machine capable of performing the following four operations: wet gunning, by pumping premixed wet concrete through flexible rubber hose to an Airplaco nozzle; concrete placing, by using the hose to deliver concrete with ¾-inch-minus aggregate; hoisting and placing mortar and grout at

higher capacities—it will hoist material up to 10 stories high and more than 300 feet horizontally; and high and low-pressure grouting, by pumping all standard grout mixes at rates up to 20 cubic yards per hour.

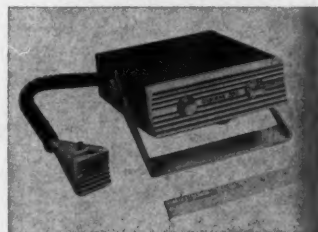
The Uni-Cretor weighs 2,200 pounds, and is 76 inches long, 82 inches wide, and 58 inches high. It is powered by a Wisconsin 56-hp air-cooled engine and has a transmission with three speeds forward and reverse.

For further information write to the Air Placement Equipment Co., Dept. C&E, 1000 W. 25th St., Kansas City 8, Mo., or use the Request Card at page 18. Circle No. 51.

New two-way radio takes minimum space

A new, all-transistor citizens' band 2-way radio is announced by the Osborne Electronics Corp.

Called Model 300, the unit operates on any of the 23 allocated citizens' band channels, and measures only



1½ × 6 × 7 inches. Standard equipment includes an efficient squelch control and noise limiter, plus a push-to-talk microphone with a 3-foot cord.

According to the manufacturer, because of the low operating power, failure to turn the set off will not cause appreciable battery drain.

The unit operates on 115 volts ac with a converter available for 6, 12, 24, or 32-volt dc operation.

For further information write to the Osborne Electronic Sales Corp., Dept. C&E, 13105 S. Crenshaw Blvd., Hawthorne, Calif., or use the Request Card at page 18. Circle No. 24.

Offer small ditcher for variety of jobs

Vermeer Mfg. Co. has announced its new Model W-1 Pow-R-Ditcher, a unit designed to dig up to 8 inches wide. Smallest in the Vermeer line of ditchers, it is recommended for a variety of contractor operations.

Features include all-hydraulic ground travel, regardless of digging or transport speeds; 4-wheel drive on 4.00 × 8 tires or crawler tracks; and a Wisconsin 9-hp engine. Special ejector paddles allow dirt to be deposited neatly on both sides of the ditch rather than over a wide area.

For further information write to the Vermeer Mfg. Co., Dept. C&E, 1437 W. Washington, Pella, Iowa, or use the Request Card at page 18. Circle No. 54.

SHOULD YOU BUY REPLACEMENT PARTS FROM THE COMPANY THAT BUILT YOUR CRUSHER?

Star Rock Products did, and increased their tonnage 75%

At Star Rock Products Co., Anaheim, California, crusher jaw plates previously used were giving only about 6 months' service. Large rocks often caused the jaw plates to "give" enough so the rocks wouldn't crush. Jams and costly delays resulted. Plates would often flow and crack.

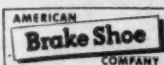
Amsco and the crusher manufacturer developed a new design, using 2% chrome (Amsco MY) alloy. After 6 months' service, the plates were in excellent condition. Jams and delays have been eliminated and tonnage handled increased 75%.

Cases like this are not unusual, because it's often difficult to resist an "experiment". After one experiment, though, most producers rediscover that the "factory part" delivers the goods.

Amsco and leading crusher manufacturers work together to assure you of maximum value in parts such as hammers, rolls, jaw plates, mantles and concaves. Avoid experiments—buy maximum value through your crusher manufacturer or his dealer.

AMSCO

AMERICAN MANGANESE STEEL DIVISION • CHICAGO HEIGHTS, ILL.
OTHER PLANTS IN: Denver • Los Angeles
New Castle, Dela. • Oakland, Calif. • St. Louis



For more facts, use Request Card at page 18 and circle No. 347



A versatile passenger and cargo carrier, the completely redesigned International Traveler combines a 6-man cab with pickup body. Low-profile exterior styling, I-beam front-end suspension, and channel steel frame reduce vehicle height approximately 5 inches. Standard power plant is the International V-266 rated at 155 horsepower; optional is the 193-hp V-304 V-8, plus three International valve-in-head 6-cylinder engines. The Traveler is available in 2 or 4-wheel drive. For further information write to the International Harvester Co., Dept. C&E, 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 2.



**Spoiling
for profit
anywhere,
everywhere...**

PARSONS[®] 77 TRENCHLINER[®]

Turning a profit on miles of small-sized trench is easy digging for the Parsons 77. It has all the features you expect to find only on much larger machines, yet is not much wider than a yardstick. It has everything you need to tangle with toughest terrain and to bring home ditch fast and clean.

The Parsons 77 cuts from 6" to 18" wide, digs to 5' depths at speeds to 21 lineal feet per minute. It gives you a choice of 32 hi-lo digging selections for most profitable penetration in any ground. And it is low on maintenance... gives you years of dependable service and miles of ditch at very low cost. Ask your distributor for details.

**PARSONS
COMPANY**
Newton, Iowa

KOEHRING
A Division of
Company

Please send me the Parsons 77 booklet.

Name _____

Company _____

Address _____

City _____ State _____

For more facts, use coupon or Request Card at page 18 and circle No. 313

Introduce portable aggregate splitter

The Porta Splitter, a new portable aggregate-sample splitter, has been announced by Gilson Screen Co. The new machine halves and quarters samples of about 1/2 cubic foot in sizes from sand up to 2-inch aggregate.

Among features of the Porta Splitter are a loading hopper that permits hand leveling of the sample to be divided, and an adjustable universal splitter chute that provides quick and accurate selection of a variety of chute openings. The unit is made of heavy welded steel, yet is small enough for transport in an auto trunk.

The universal chute of the new Gilson splitter consists of a series of aluminum or plated-steel bars with a locating rod passed through their lower ends. Chute widths are easily selected by manipulation of the bars, which are then locked in place. The equally divided sample flows into two pans on either side of the chute.

The Porta Splitter has been de-



Gilson's new Porta Splitter is a portable aggregate test-sizing unit for field or laboratory use.

signed for use with the Gilson Porta-Screen, a portable test-sizing unit for field and laboratory use.

For further information write to the Gilson Screen Co., Dept. C&E, 110 Center St., Malinta, Ohio, or use the card at page 18. Circle No. 81.



**HERE WE GO!
WAGON TRAIN**
MORE TONS PER TRIP
A CONVENIENT WAY TO
UNLOAD—SIDE DELIVERY—
KEEP GOING. LEAVE
ROAD CLEAR FOR NEXT
WAGON TRAIN



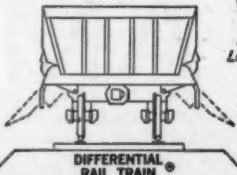
DIFFERENTIAL COMPANY

DANIEL F. FLOWERS, V.P.
2100 ESPERSON BUILDING
HOUSTON 2, TEXAS
CAPITAL 2-7253

FINDLAY, OHIO

FRED F. FLOWERS, PRES.
P.O. BOX 238
FINDLAY, OHIO
GARDEN 2-0525

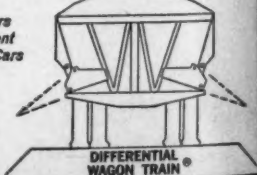
BUILDERS OF SIDE DUMP
VEHICLES SINCE 1915
Railway Air Dump Cars
Mine Haulage Equipment
Locomotives and Mine Cars



DIFFERENTIAL
RAIL TRAIN[®]



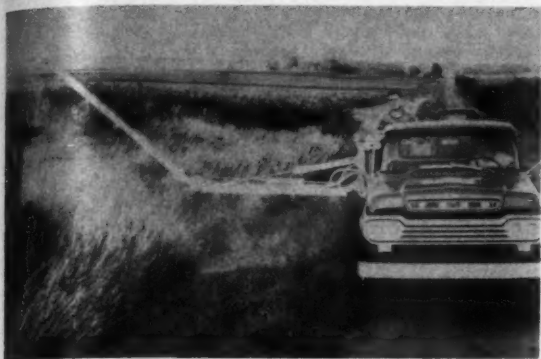
PATENTED



DIFFERENTIAL
WAGON TRAIN[®]

For more facts, use Request Card at page 18 and circle No. 314

CONTRACTORS AND ENGINEERS



This John Bean Contour-Matic boom is said to permit complete spray coverage of any type of roadside terrain. It comes with an all-steel truck bed.

New 'contour' boom for roadside sprayers

A new boom for roadside weed and brush-control spraying, complete with an all-steel truck bed, is announced by the John Bean Division of the Food Machinery & Chemical Corp.

The new Contour-Matic boom, said to afford complete coverage of any roadside terrain, can be ordered with a 10 or 15-foot truck bed for mounting on 1½-ton trucks or larger. Although the boom mount and hydraulic control panel are an integral part of the bed, the entire assembly can easily be removed so that the truck may be

used for other purposes.

Two Contour-Matic booms are available. The Model 85-39 is a 24-foot boom that covers 3 acres per running mile with each pass. The Model 85-40 is a 33-foot boom that covers 4 acres per running mile with each pass.

For further information write to the Food Machinery & Chemical Corp., John Bean Division, Dept. C&E, P. O. Box 840, Lansing, Mich., or use the Request Card at page 18. Circle No. 64.

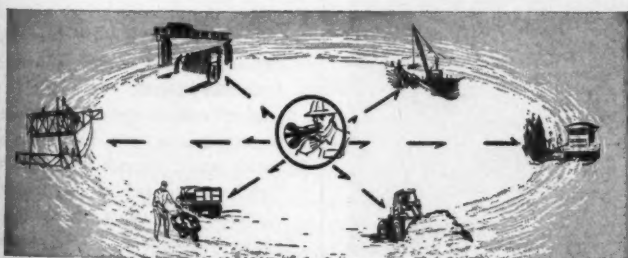
Offer portable tool for strapping forms

The Amp, a portable all-power-operated combination strapping tool, has been announced by Signode Steel Strapping Co. The company recommends it for use in applying strapping to concrete forms.

Air power reportedly does all the work in the new Signode tool—engages the feed wheel, tensions the strapping, applies the seal, severs the strap from the coil, and disengages the feed wheel.

The Amp's pneumatic power has cut manual operations to a minimum, the company claims. The compact design, the short base (4¾ inches), and the elimination of tensioning and sealing handles permit the Amp to be used in cramped spaces.

For further information write to the Signode Steel Strapping Co., Dept. C&E, 2600 North Western Ave., Chicago 47, Ill., or use the Request Card at page 18. Circle No. 77.



PROJECT YOUR ORDERS... LIKE A HARPOON... OVER A HALF-MILE RANGE

MAKE 'em hear you... without screaming your head off! Just speak in a normal voice, and let your Audio Hailer project your words... anywhere within a half-mile radius.

New "TP" (transistor-powered) Hailer runs on ordinary flashlight cells, weighs only 5¼ lbs. complete, has no external connections whatever, and far out-performs any other type of portable voice equipment.

Save your voice... your time... your temper! Mail coupon for full description and price list.



AUDIO EQUIPMENT CO., INC.
P.O. Box 192, Port Washington 40, N. Y.
RUSH Audio "TP" Hailer catalog and prices,

Name _____ Title _____
Company _____
St. & No. _____
City _____
or Town _____
Zone _____
(if any) State _____

AUDIO
TP
HAILER
transistor-powered
PORTABLE MEGAPHONE

For more facts, use coupon or Request Card at page 18 and circle No. 315

Heavy-duty trailer rake speeds big-stone removal

A rake designed for the removal of large stones and featuring both raking and reinforcing teeth is available from the York Modern Corp.

Known as Model RC, the unit is a trailer-type rake with a 2-way hydraulic system capable of utilizing both hydraulic down pressure and the entire weight of the machine for penetration. Raking teeth are spaced 3¼ inches apart to screen out smaller material while discharging large stones and debris into a row.

Auxiliary teeth, 8 inches shorter than the raking teeth, reinforce the

raking teeth without interfering with their "fingering" action.

In most instances it is desirable to scarify the ground before using the rake, which then works to a depth of 4 to 6 inches, according to the manufacturer.

Length of the Model RC is 14 feet 7 inches over all; working width is 9 feet 4 inches.

For further information write to the York Modern Corp., Dept. C&E, Unadilla, N. Y., or use the Request Card that is bound in at page 18. Circle No. 9.



SILENT HOIST
360° SWING

2 SIZES:

MODEL FAX—12,000 lbs. cap.
MODEL FAY—20,000 lbs. cap.

THE LOW COST OF LIFTING WITH... SILENT HOIST KRANE KAR

360° BOOM SWING—Now... another addition to the famous family of Silent Hoist KRANE KAR... the original Mobile Swing Boom Crane! **BOOM ROTATION:** All-Hydraulic 360° continual rotation on heavy-duty double-race ball-bearing turntable. **BOOM:** 15/22 ft., manual or hydraulic telescoping. **TRANSMISSION:** Hydraulic power shift directional in combination with flywheel torque converter. **STEERING:** Full time power steering, finger-tip control. **ENGINE:** Heavy duty 6 cylinder valve-in head type. **BOOM TOPPING:** Horizontal to highest vertical in only 8 seconds. **BOOM HOISTING:** Load block 3 parts of line 25 to 55 fpm. **TIRES:** Dual pneumatic tires on traction axle for high flotation and extra blow-out protection. **TOTAL VISION AND SAFETY:** No obstruction in any position of load or crane; operator fully protected through 360° rotation of boom. Write for complete details in illustrated bulletin 199.

180° BOOM SWING—The Standard widely favored All-Hydraulic or Mechanical 180° swing boom crane models. Lifts, carries, and places any load up to 12½ tons. One engine powers the machine for travel and all crane applications—finger-tip control. Front traction wheel drive supports chassis and crane load. 2 geared speeds for hoisting, topping, and swinging. No tail swing—Boom never passes over Operator's head. Write for complete details in illustrated bulletin 179.



SILENT HOIST
180° SWING

5 SIZES:

1½, 2½, 5, 10, 12½ tons

SILENT HOIST & CRANE CO. - BROOKLYN 20, N. Y.

For more facts, use Request Card at page 18 and circle No. 316



Getman Bros. offers an electric truck for tunneling or other enclosed work where gasoline fumes would present a hazard.

New electric truck for underground work

A new, battery-powered electric truck for tunneling and other underground work has been announced by Getman Bros. The Model BE-18 truck is adaptable for any application where gasoline and other types of internal-combustion engines would be prohibited because of fumes.

The new unit has an over-all length of 103 inches, over-all width of 43 inches, over-all height to top of dump body of 43 inches, a wheelbase of 58 inches, and a dump-box capacity of $\frac{3}{4}$ yard.

It has 3 speeds forward and 3 reverse, and can carry a load of up to $1\frac{1}{2}$ tons. The truck may also be equipped with a platform body, which can be interchanged with the dump body in a matter of minutes.

One man can load, drive, and dump the new electric truck.

For further information write to Getman Bros., Dept. C&E, Box 71, South Haven, Mich., or use the Request Card that is bound in at page 18. Circle No. 82.



USED BY MEN WHO BUY EQUIPMENT FOR WHAT IT SAVES

The Mudder

You don't have to baby a Homelite Diaphragm Pump. It's a mudder... the most practical pump you can use for water thick with goo. Doesn't choke up with solids. It's designed to handle water heavy with mud, muck and sand at the rate of 5000 gallons per hour. Automatic self-priming. Guaranteed 28 feet suction lift. Total heads up to 50 feet, including friction. And it gets to the job just as fast as it does the job, for it weighs only 120 pounds. Can be carried to any location with money-saving ease.

Available with top-quality Homelite 2-cycle engine or 4-cycle Briggs & Stratton engine. Full on-your-job demonstrations are free at your request.



HOMELITE factory branches are located throughout the country. Your nearest one is as close as your phone. Call or write for convincing demonstration or rapid service in any way.

HOMELITE
CARRYABLE
PUMPS
GENERATORS • CHAIN SAWS
BLOWERS

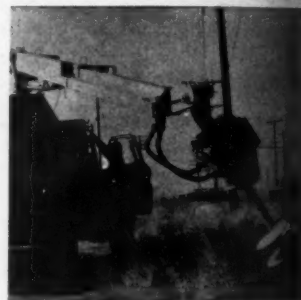
HOMELITE: A DIVISION OF TEXTRON INC. - 9604 RIVERDALE AVE., PORT CHESTER, NEW YORK • IN CANADA - TERRY MACHINERY CO., LTD.

For more facts, use Request Card at page 18 and circle No. 317

Digger attachment offers many features

A new 4-speed heavy-duty hydraulic digger attachment, said to substantially increase horsepower at the auger, is announced by the Truck Equipment Co.

Features pointed out by the manufacturer include: (1) exceptionally efficient operation over long periods in difficult soil conditions; (2) extra-



The Truco/Denver 4-speed hydraulic digger is attached to the Truco universal turret derrick and, with 360-degree rotation of boom, is said to dig in any position.

heavy-duty components for long, rugged use; (3) improved design and construction of more powerful and efficient pumps, motors, valves, and hydraulic system; (4) ability to dig anchor holes at any angle when used in combination with the Truco universal turret derrick from left-rear, right-rear, or behind-cab mounting positions; (5) auger sizes up to 30 inches in diameter; (6) speeds easily selected from a convenient single-lever control.

For further information write to the Truck Equipment Co., Dept. C&E, 3963 Walnut St., Denver, Colo., or use the Request Card at page 18. Circle No. 8.

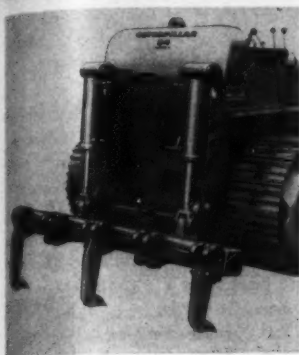
New all-purpose ripper for tractor series

Designed specifically for Caterpillar D4 Series C tractors, a new all-purpose ripper is now available from the American Tractor Equipment Corp.

Heavy-duty construction, big fast-acting hydraulic cylinders, and a wide variety of shanks and replaceable points are said to provide superior ripping performance.

Features include a high-lift tool

CONTRACTORS AND ENGINEERS



This new Ateco ripper, designed for mounting on Cat D4 tractors, is said to be applicable to a wide variety of conditions.

depths less than maximum, and a fold-away shank feature that keeps dangerous points retracted yet instantly ready for use without replacing the top pin in the shank holder bracket.

Ripping depth is 14 inches for standard shanks, 18 inches for optional shanks.

For further information write to the American Tractor Equipment Corp., Dept. C&E, 9131 San Leandro Blvd., Oakland, Calif., or use the Request Card at page 18. Circle No. 69.



Offer end-dump trailer for quarry, pit work

The new Stabilift end-dump trailer can handle loads of up to 70 tons and works with any tractor of sufficient power.

Challenge-Cook Bros., Inc., has developed a semitrailer for quarry and pit work. The unit can handle payloads up to 70-ton capacity.

The new Stabilift end-dump trailer is of heavy-plate body construction and is equipped with 100,000-pound-capacity off-highway axles and suspension. It has reinforced, ribbed sides, and a 70-ton triple hoist provides fast, safe dumping. It may be used with a choice of conventional tractors.

For further information write to Challenge-Cook Bros., Inc., Dept. C&E, 3334 San Fernando Road, Los Angeles 65, Calif., or use the Request Card at page 18. Circle No. 84.

New 30-hp compressor delivers 141 cfm

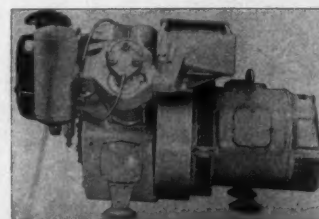
A new 30-hp air compressor delivering 141 cfm is offered by Atlas Copco.

Foot-mounted on bonded rubber, this compressor—designated the TT6—is a 2-stage single-acting unit featuring total air cooling. The manufacturer points out that this design facilitates the flow of lubricating oil and in addition eliminates condensation, aside from the advantage of eliminating water.

Lightweight metal alloys are used for many parts, including crankcase covers, pistons, and valve retainers. Equipped with an air-cooled inter-cooler, this machine is rated for working pressures up to 125 psi.

Machine weight ranges from 1,050 to 1,350 pounds. Roughing-in dimensions are 34 inches wide, 52½ inches deep, and 29½ inches high.

For further information write to Atlas Copco, Inc., Dept. C&E, 610 Industrial Ave., Paramus, N. J., or use the Request Card at page 18. Circle No. 20.



For further information on any product described in this section circle the indicated number on the Request Card at page 18.

ESSICK VIBRATING COMPACTORS



ESSICK VR-54TE VIBRATING COMPACTOR TRIPLEX HOOK-UP

100% COMPACTION IN TWO PASSES!

COSTS DOWN—PROFITS UP WITH ESSICK VIBRATING COMPACTORS

John Heckle, General Superintendent for S. Cantor Associates Inc., on the Sayre Woods South Project in Madison Township, New Jersey, says: "we put in borrowed fill on this 2000 unit housing development to meet FHA requirements which called for 95% compaction. A triplex hook-up of Essick VR-54TE Vibrating Compactors was used, pulled by a D-4 tractor with the material being put down in 6 inch lifts. We used two pushers, a dozer, a grader, and 6 caterpillar pans to keep up with the Essick Vibrating Compactors."

OVER 100% COMPACTION was achieved IN TWO PASSES of this work unit, and we compacted approximately 8000 cubic yards of fill per nine hour day in a six day week. This Triplex Unit of Essick VR-54 Vibrating Compactors not only allowed us to cut our costs tremendously, but we completed the compaction phase ahead of schedule."

ESSICK VIBRATING COMPACTORS ARE CUTTING THOUSANDS OF DOLLARS DAILY FROM CONTRACTORS COSTS! ASK FOR PROOF—SEE YOUR ESSICK DEALER NOW FOR A DEMONSTRATION.



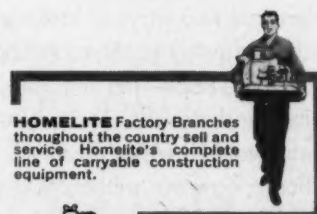
9 Models of Vibrating Compactors from 13" to 72" widths

Tandem Rollers from ½ to 6 Tons

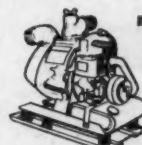
ESSICK MANUFACTURING COMPANY
1950 SANTA FE AVENUE 850 WOODRUFF LANE
LOS ANGELES 21, CALIFORNIA ELIZABETH, NEW JERSEY

Affiliated with THE T. L. SMITH CO., Milwaukee, Wisconsin

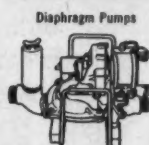
For more facts, use Request Card at page 18 and circle No. 318



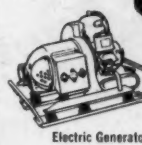
HOMELITE Factory Branches throughout the country sell and service Homelite's complete line of carryable construction equipment.



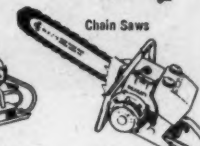
Centrifugal Pumps



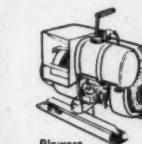
Diaphragm Pumps



Electric Generators



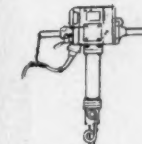
Chain Saws



Blowers



Vibrators



Bosch Electric Paving Breakers



Bosch Electric Rock Drills

HOMELITE FACTORY BRANCHES

EAST: CONNECTICUT: Greenwich, Hartford • **NEW JERSEY:** North Arlington, Woodbridge • **NEW YORK:** Albany (Latham), Buffalo, New York (North Arlington, N. J.), Rochester, Syracuse • **MAINE:** Orono • **MARYLAND:** Baltimore • **MASSACHUSETTS:** Boston (Allston) • **PENNSYLVANIA:** Altoona, Erie, Harrisburg, Hazleton, Philadelphia, Pittsburgh, Malvern • **VIRGINIA:** Arlington, Richmond, Roanoke • **WEST VIRGINIA:** Charleston, Clarksburg

SOUTH: GEORGIA: Atlanta • **FLORIDA:** Jacksonville, Miami • **LOUISIANA:** New Orleans (Metairie), Shreveport (Bossier City) • **NORTH CAROLINA:** Charlotte, Raleigh • **OKLAHOMA:** Oklahoma City • **TENNESSEE:** Knoxville, Memphis • **TEXAS:** Dallas, Lufkin

MID-WEST: ILLINOIS: Chicago (Stone Park) • **INDIANA:** Indianapolis • **MICHIGAN:** Detroit, Grand Rapids • **MINNESOTA:** St. Paul • **MISSOURI:** Kansas City, St. Louis • **NEBRASKA:** Omaha • **OHIO:** Cincinnati, Cleveland, Toledo • **WISCONSIN:** Milwaukee

WEST: CALIFORNIA: Fresno, Los Angeles (Alhambra), Sacramento, San Francisco • **COLORADO:** Denver • **OREGON:** Portland • **UTAH:** Salt Lake City • **WASHINGTON:** Seattle, Spokane

HOMELITE

A DIVISION OF TEXTRON INC.
9404 Riverdale Ave., Port Chester, N. Y.

In Canada:
TERRY MACHINERY CO. LTD.

For more facts, circle No. 319

After processing a charge from the loader, the Paul Bunyan 360 discharges shredded materials into the truck. Refuse has been rejected from the belt and piled away from the loading area.



Heavy-duty shredder for soil processing

A new shredder for landscape and turf contractors, as well as highway contractors, is announced by the Royer Foundry & Machine Co. Designated the Paul Bunyan 360, this soil-processing plant is equipped with a 70-hp engine and a 9-foot-wide hopper, and has a shredding capacity of up to 120 yards per hour.

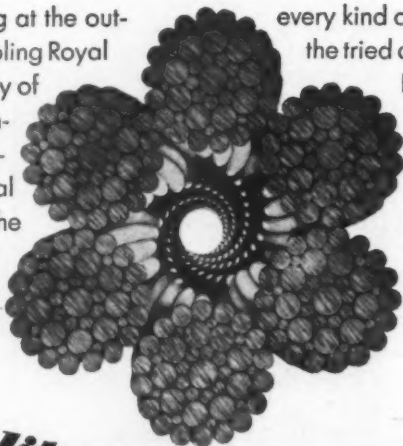
In one operation, the Paul Bunyan shreds, blends, mixes, and aerates materials, at the same time rejecting stones, trash, and other undesirable elements. Capable of taking a charge of 2 cubic yards from a bucket loader

or dragline, the large feeding hopper is unloaded by a flighted belt that moves the material at a steady rate up to the shredding mechanism.

The new rig has an adjustable sweep and deflector that permits various textures of finished material and discharges it exactly where it is needed.

For further information write to the Royer Foundry & Machine Co., Dept. P. B., Dept. C&E, 158 Fringle St., Kingston, Pa., or use the Request Card that is bound in at page 18. Circle No. 78.

Here are two ways of looking at the outside and inside quality of Roebbing Royal Blue Wire Rope—the uniformity of wires and strands. Their symmetry would be relatively insignificant, however, without Royal Blue's extra high strength. It's the combination that is the source of real wire rope savings. For long, economical service on



every kind of job, there is no substitute for the tried and proven quality of Roebbing Royal Blue. It pays off for you. Learn more about Royal Blue from your wire rope distributor, or write now for free booklet to Roebbing's Wire Rope Division, Trenton 2, N.J.

ROEBBLING
Branch Offices in Principal Cities
John A. Roebbing's Sons Division
The Colorado Fuel and Iron Corporation.

Quality inside and outside



We put a lot of work into it—
You get a lot of work out of it

For more facts, use Request Card at page 18 and circle No. 320

Citizens' band radios available in two models

Cadre Industries Corp. announces the Models 500 and 100 fully transistorized, portable citizens' band transceivers.

The Cadre 500 is a 5-watt portable transceiver, incorporating 15 transistors and 7 diodes. The manufacturer points out that its exceptionally low power drain of only 2 watts makes it ideal for mobile, as well as fixed, operation. The transmitter has a power input of 5 watts, 100 per cent modulation capability, and very high frequency stability. The transceiver operates on 5 crystal-controlled transmit and receive channels; the receiver is also tunable to all channels.

The Cadre 500 operates from either a 115-volt ac supply or standard 12-volt battery. Its dimensions are 11 5/16 inches wide, 3 inches high, 5 5/16 inches deep.

The 100-milliwatt transceiver, the Cadre 100, will produce a clean, stable signal over a 1/2 to 1-mile range. Operating on one crystal-controlled transmit-receive channel, it reportedly will provide maximum reception on any of the citizens' band channels. Incorporating 7 transistors and 1 diode, the unit measures 6 1/4 x 3 1/4 x 1 1/2 inches and will fit into a shirt pocket. Power is supplied by a standard Mercury 12-volt battery.

For further information write to the Cadre Industries Corp., Dept. C&E, Box 150, Endicott, N. Y., or use the card at page 18. Circle No. 16.



Cadre 100 and Cadre 500 citizens' band transceivers.

CONTRACTORS AND ENGINEERS

An erosion-control blanket made of textile-type glass fibers is available from the Gustin-Bacon Mfg. Co. The photograph shows a construction crew installing this blanket in a highway parallel ditch. Bonded together with a permanent thermosetting resin, the glass fibers reportedly produce a mat of extremely high tensile strength, whether wet or dry. When pinned in place, the blanket, called Ultracheck, is said to prevent erosion despite heavy rains, rapid-running water, and repeated freezing and thawing. According to the manufacturer, it will not deteriorate. For further information write to the Gustin-Bacon Mfg. Co., Dept. C&E, 210 W. 10th St., Kansas City, Mo., or use the Request Card at page 18. Circle No. 3.



Air-cooled pump line to 90,000-gph capacity

A series of seven new air-cooled, diesel-powered, self-priming centrifugal pumps is announced by Rice Pump & Machine Co. The new line is available with 2, 3, 4, and 6-inch openings. Capacities range from approximately 15,000 to 90,000 gph.



The diesel engines currently offered are 4-cycle, air-cooled, crank-start types with electric starters as optional equipment. Controlled weights throughout the over-all design permit the use of high-speed trailers with 4.00 x 12 and 5.90 x 15 pneumatic-tire wheels and tow tongues. Skids and conventional wheel mountings are also available.

For further information write to the Rice Pump & Machine Co., Dept. C&E, 400 Park Ave., Belgium, Wis., or use card at page 18. Circle No. 76.

Joint-sealing compound is easily applied

No-Trak, a new cold-applied joint-sealing compound for horizontal expansion and contraction joints, has been announced by Serviced Products Corp.

According to the manufacturer, the product is easily and quickly applied without special mixing or application equipment. When cured, it has a surface texture similar to that of very hard rubber.

Hand stirring of two polymer-type liquids, packaged in a 4-gallon container, chemically unites them into an exceptionally homogeneous sealer that is simply poured into the joint, the company reports.

For further information write to the Serviced Products Corp., Dept. C&E, 6051 W. 65th St., Chicago 38, Ill., or use the Request Card at page 18. Circle No. 95.

For high density compaction
...for MORE than 90 psi
...for less money
...get BMCO's

18T9



BROWNING MANUFACTURING CO.
P. O. BOX 2707 - SAN ANTONIO, TEXAS - WALNUT 3-4331
Export Office: P. O. Box 1051, Denver, Colorado



The BMCO 18T9; 18 ton, 9-wheeled self-propelled roller; is the only roller in its price class delivering a full 92 psi ground contact area — 8 to 10% more than any comparable roller.

Capable of maintaining a ballast weight of 36,000 pounds, and tire pressures of 110 pounds, the 18T9 delivers a contact pressure of 4,000 pounds with each of its independently oscillating wheels. Incorporating all the quality features of the famous BMCO line, the 18T9 has automotive type power steering, a torque converter and Revers-O-Matic transmission with four speeds forward and four reverse.

For maximum compaction at a minimum cost, be sure to investigate the complete line of BMCO compaction equipment.



MODEL 3377
SELF-PROPELLED ROLLERS



MODEL 25711
SELF-PROPELLED ROLLERS



MODEL SPB-9
SELF-PROPELLED ROLLERS



MODEL HP-4 COMPACTORS



MODEL Y-60
VIBRATING ROLLERS



SHEEPFOOT ROLLERS



PNEUMATIC-TIRED ROLLERS



STEEL WHEEL ROLLERS



TANDEM ROLLERS

BROWNING MANUFACTURING CO.

P. O. BOX 2707, SAN ANTONIO 6, TEXAS

Please send me complete information on the following BMCO Rollers: ☐ Vibrating ☐ Pneumatic Tired, Self-propelled ☐ Tow Type ☐ Steel Wheel (3-Wheel, Tandem)

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

This Lorain 25-ton Moto-Crane has, among other features, a full-circle-visibility cab.

New 25-ton crane has several features

A new 25-ton Lorain Moto-Crane, the Model MC-325, has been announced by The Thew Shovel Co.

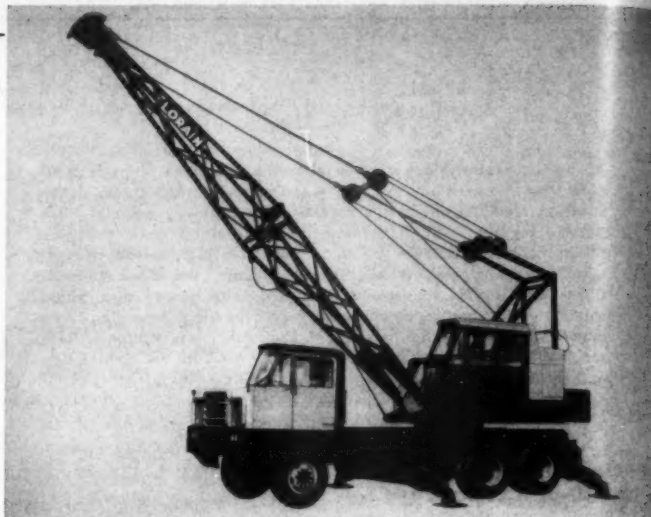
Featured on the MC-325 is the new full-circle-visibility cab; by means of a flip-top roof design, walk-around accessibility is provided. Power-Set outriggers that can be set from travel to working position in about a minute are standard equipment.

The MC-325 carrier frame is of all-welded box sections, and it has heavy-duty (cam and twin-lever type) hydraulic-assist steering, with air

brakes on all six wheels. Manual-hydraulic turntable controls are standard. Lorain joy-stick full-power controls are optional.

Lorain's square-tubular-chord boom is furnished when the MC-325 is equipped as a crane (110-foot maximum), clamshell, or dragline. The rig is convertible for shovel or hoe use.

For further information write to The Thew Shovel Co., Dept. C&E, 28th and Fulton Road, Lorain, Ohio, or use the Request Card at page 18. Circle No. 79.



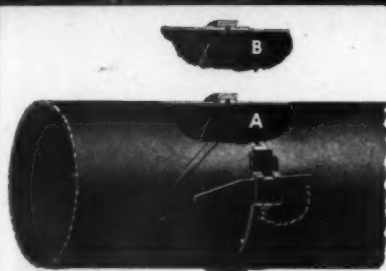
You're **SAFE** Underground With This **NAYLOR** Combination



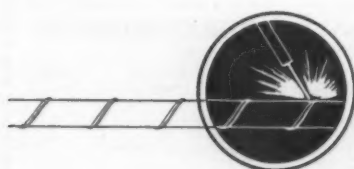
To bring in fresh air and get rid of gases and fumes in underground operations, you can't beat the combination of NAYLOR Spiralweld pipe and Wedgelock couplings.

Here is a light-wall pipe with built-in extra collapse strength and safety for push-pull ventilation. It's easy to handle—easy to install. Especially so, when you make up the line with NAYLOR Wedgelock couplings. These easy-to-use connections enable you to couple joints with only one side of the pipe in the open. Lines hug the wall and can be extended quickly as work progresses.

For air, water or ventilating service, it will pay you to get details on this time-and-money-saving combination. Ask for Bulletin No. 59.



The NAYLOR Low-Pressure Wedgelock coupling for ventilating service can be furnished for pipe with (A) accurately-sized shoulder ends, or (B) with grooved ends. A hammer is the only tool needed to connect or disconnect this coupling.



NAYLOR PIPE *Company*

1270 East 92nd Street, Chicago 19, Illinois

Eastern U. S. and Foreign Sales Office: 60 East 42nd Street, New York 17, N. Y.

For more facts, use Request Card at page 18 and circle No. 322

Grouser-shoe rebuilder trims worn sprockets

A new grouser-shoe/sprocket reconditioner, a machine for rebuilding both tractor grouser shoes and drive sprockets, is available from the Victor Equipment Co.

This rebuilder combines automatic flame cutting with submerged-melt automatic welding to give the operator a completely automatic method of trimming tractor pads and rewelding new grouser bars onto them. In addition, the machine automatically trims worn tractor sprockets and welds new sprocket rings onto the hub. Its cutting torches and semiautomatic welder can also be used on other jobs.

According to the manufacturer, time required by this machine to set up, trim, weld, and unload a D8 grouser shoe is approximately 11 minutes; a D8 sprocket rim reportedly can be rebuilt on it in less than two hours.

For further information write to the Victor Equipment Co., Dept. C&E, 844 Folsom St., San Francisco 7, Calif., or use the Request Card at page 18. Circle No. 23.

Offer optional engine for tractor-dozers

A General Motors 290-hp diesel engine is now available as optional equipment on the Michigan Model 280 tractor-dozers, according to the Construction Machinery Division of the Clark Equipment Co.

Designed to increase the tractor-dozers' flexibility and production, the new engine is a GM Model 8V-71. It features a 2-stroke engine cycle, unit injector fuel system, and maximum parts interchangeability.

Driven through the Clark power train, the Model 280 has a top speed of 28 mph in forward or reverse. The drive line consists of a Clark industrial-type 3:1 multiplication-factor torque converter, 4-speed power shift, and all-wheel drive.

For further information write to the Clark Equipment Co., Construction Machinery Division, Dept. C&E, P. O. Box 599, Benton Harbor, Mich., or use the Request Card at page 18. Circle No. 46.

The Model FDB120 Road Runner Wedgefoot roller is offered for high-speed compacting.

New tamping roller for high-speed work

A new tamping roller for high-speed compacting has been introduced by American Steel Works. Called the Road Runner Wedgefoot Model FDB120, this yoke-tongue roller is suitable for such tractors as the John Deere 840 and the Caterpillar DW10.

Design of the new roller features replaceable cleaner tooth tips, both

front and rear. Roller drums are 4 feet in diameter and 5 feet in length. Oscillating bolts are not in tension in this model.

Empty weight is 12,650 pounds.

For further information write to the American Steel Works, Dept. C&E, 1211 W. 27th St., Kansas City, Mo., or use the Request Card at page 18. Circle No. 70.



Front-end winches for use on Jeeps

A new front-end winch for the Jeep Universal has been developed by Braden Winch, Division of Nautec Corp. Three models have been designed for use with six Jeep models, and each has a safe working load of 8,000 pounds.

These winch models range in weight from 204 to approximately 214 pounds, including mounting and driving kit and transfer-case power take-off. The three speeds forward and one speed reverse in the Jeep transmission are transferable for winch operation. The winch may be used in conjunction with or independent of the Jeep's own motive power.

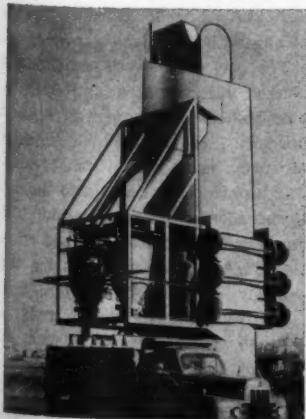
For further information write to Braden Winch, Division of Nautec Corp., Dept. C&E, P. O. Box 547, Broken Arrow, Okla., or use the Request Card at page 18. Circle No. 85.

Portable concrete plant has high production

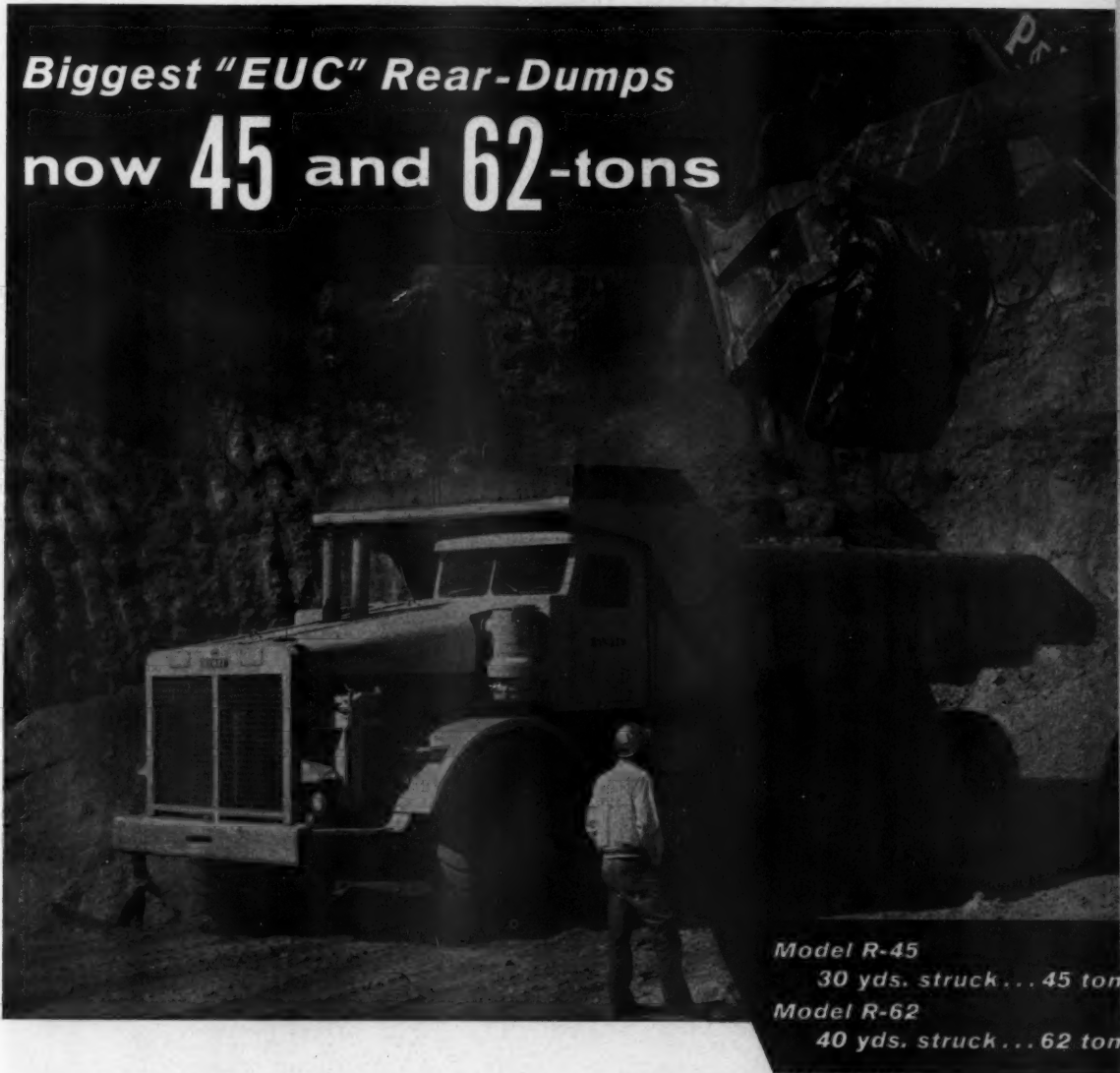
Engineered Equipment, Inc., announces the introduction of a high-production unit to its Nomad line of concrete plants.

This new paving plant can easily deliver 360 batches per hour, within specification tolerance, according to the manufacturer. The plant's speed, accuracy, and high production are accomplished by combining a Nomad 400-barrel portable cement silo with twin paving batchers and a 600-barrel-per-hour elevator.

For further information write to Engineered Equipment, Inc., Dept. C&E, 1001 Linden Ave., Waterloo, Iowa, or use the Request Card at page 18. Circle No. 49.



Biggest "EUC" Rear-Dumps now 45 and 62-tons



Model R-45
30 yds. struck... 45 ton
Model R-62
40 yds. struck... 62 ton

Designed and built for heavy off-highway service in construction, mine, quarry and industrial work, Rear-Dump "Eucs" have paced the industry for over 25 years. Now rated capacities of the two biggest models have been increased to meet field demand for still larger payloads than before.

For work under large loading shovels on the big tonnage, big yardage jobs, check these Model R-45 and R-62 "Eucs". They have payload capacities of 90,000 and 124,000 pounds and replace the widely used 40 and 55-ton models in the Euclid line of rear-dumps.

Use of high strength alloy steel for all body wearing surfaces cuts net weight and increases payload capacity... there's no compromise on the rugged durability and performance that "Eucs" are known for throughout the world. And, although they're new in size, both the R-45 and R-62 have years of job-proved dependability since they are of the same design and incorporate the same major components as the well-known models they supersede.

Have your Euclid dealer give you detailed information and show you how these big "Eucs" can cut your hauling costs. Euclid Division of General Motors, Hudson, Ohio



EUCLID

DIVISION OF GENERAL MOTORS, HUDSON, OHIO
Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland



The Lull Dyna-Lugger has a payload capacity of 15,000 pounds with lift arms retracted, 10,000 pounds with arms extended.

New loader-carrier is heavy-duty rig

The Lull Engineering Co., Inc., has introduced a new multipurpose loader-carrier specially designed for heavy-duty material handling. Called the Dyna-Lugger, it has a payload capacity of 15,000 pounds with lift arms retracted, 10,000 pounds with lift arms extended.

Construction features include a rigid frame designed for strength and stability; power-hydraulically-boosted 4-wheel steering with independent steering control for the rear wheels; roller-type nontwisting telescopic lift arms; longer wheelbase for better weight distribution; and dual cab

with independently adjustable seats and natural-positioned controls. A choice of engines—heavy-duty Hercules 6-cylinder, Chrysler Industrial V8 gasoline engine, or General Motors diesel—is available.

Operating features include extendible, variable forward reach of up to 11 feet 4 inches, and greater maneuverability and traction resulting from 4-wheel drive and 4-wheel steer.

For further information write to the Lull Engineering Co., Inc., Dept. C&E, 3045 Highway 13, St. Paul 11, Minn., or use the Request Card at page 18. Circle No. 73.

This Tamper is too much fuss



Just like this tired old Bus



It was good enough for father



But this one is less bother . . .



NEW CM-10

For satisfaction contact Vibro-Plus.

It may be a little corny to sing the praises of a new machine in poetic style, but it is difficult to get across the terrific reception the Dynapac CM-10 received from the contractors who were kind enough to field test it for us. It travels faster, handles easier, and is much less balky. Prove it to yourself. Contact your nearest Vibro-Plus distributor for a demonstration of compaction ability.

THE NEW
DYNAPAC
CM-10



VIBRO-PLUS PRODUCTS, Inc.
STANHOPE, NEW JERSEY

WORLD'S LEADING MANUFACTURER OF VIBRATORY EQUIPMENT FOR OVER TWO DECADES.

For more facts, use Request Card at page 18 and circle No. 324

Introduce new method of trench shoring

A new trench-shoring concept, said to be an improvement over conventional jack-and-timber methods, is represented by a product being offered by the Speed Shore Corp.

Speed Shore units are rugged aluminum rails or bearing plates connected by expandable hydraulic cylinders and so designed that they can be installed or removed from the ditch top by one man. Cross braces are automatically locked at right angles to the trench wall.

A full day's shoring can be carried to and from the job by a small pickup truck, since each assembly folds flat and weighs only a little more than 50 pounds.

A Speed Shore system permits shoring of all standard trenches from 22 to 120 inches. Deeper trenches are shored by stacking the units.

For further information write to the Speed Shore Corp., Dept. C&E, 17000 South Western Ave., Gardena, Calif., or use the Request Card at page 18. Circle No. 89.

New drill attachment for 1 1/2-yard cranes

Any 1 1/2-yard crawler or truck crane can be converted to a high-speed earth drill with the new Calweld Series 150-C bucket-type drill attachment, according to the manufacturer.

The new drill bores holes from 1 to 14 feet in diameter up to 200 feet deep, at a rate of up to 60 feet per hour. Bucket capacity is 1 1/2 yards. Straight, vertical holes or holes slanted to a 1 to 3 batter can be drilled with the unit.

The new drill attachment is completely self-contained and operates independent of crane power; a gasoline or diesel engine is furnished. Mounting time is less than 30 minutes. Controls are brought to the cab to permit one-man operation. The crane operator drills, lifts, and empties the bucket without leaving the cab.

For further information write to Calweld, Inc., Dept. C&E, 7222 E. Slauson Ave., Los Angeles 22, Calif., or use the Request Card at page 18. Circle No. 92.

CONTRACTORS AND ENGINEERS

The Super rubber-tire loader, has Blaw-Knox

Major features include: automatic bituminous and ahead capacity of 1000 lbs on 1000 lbs. The new with a 1000 lbs. capacity for a hinge for available

Add co to equi

The E. C. rubber-tire loader, has Blaw-Knox

Major features include: automatic bituminous and ahead capacity of 1000 lbs on 1000 lbs. The new with a 1000 lbs. capacity for a hinge for available

According to the series of steel cutters will remove the surface and 5 inch lever gives the plane assemblies in less than the wheel move the area.

For further information write to the Equip. Dept. C&E, 17000 South Western Ave., Gardena, Calif., or use the Request Card at page 18. Circle No. 89.

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According to the new coverage machines, hoes, ripper. Heat-tr the Hens Brinnell-ness and turer rep

Self-sh the v decrease points st They are strength for longer tion, acco

For fur the Hens Dept. C&E, 17000 South Western Ave., Gardena, Calif., or use the Request Card at page 18. Circle No. 92.

For further information write to Calweld, Inc., Dept. C&E, 7222 E. Slauson Ave., Los Angeles 22, Calif., or use the Request Card at page 18. Circle No. 92.

Bituminous paver has major improvements

The Super Paver Model PF-180, a rubber-tire bituminous paver-finisher, has been introduced by the Blaw-Knox Co.

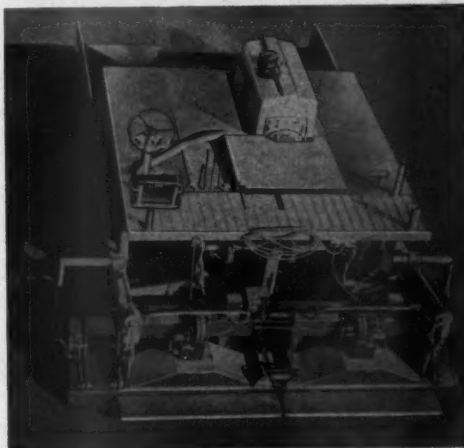
Major features of the machine include: automatic level control of bituminous material through augers, and ahead of the screed; hopper capacity of 12 tons; hydraulic folding sides on hopper; and new one-piece screed design.

The new paver is also equipped with a one-piece 10-foot-wide basic screed to eliminate center split, and a hinge for crowning. Extensions are available in 1-foot and 6-inch units

for expansion to 16-foot spreading width.

Powered by a Hercules gasoline engine, which develops 92 horsepower at 1,800 rpm and 106 horsepower at 2,200 rpm, the new Super Paver has eight paving speeds, ranging from 16 to 117 fpm. A Hercules diesel engine is also available for use with the unit.

For further information write to the Blaw-Knox Co., Construction Equipment Division, Dept. C&E, Mattoon, Ill., or use the Request Card that is bound in at page 18 of this issue. Circle No. 42.



The Blaw-Knox Super Paver bituminous paver-finisher features automatic level control of material.

Add concrete plane to equipment line

The Equipment Development Co., Inc., announces a new gasoline-powered concrete plane for the removal of excess concrete and asphalt from slabs, roadways, bridge surfaces, airport runways, and like surfaces.

According to the manufacturer, a series of adjustable high-carbon-steel cutters, rotating at high speed, will remove a traffic line or "cut" the surface of a slab 1/2 inch deep and 5 inches wide. A quick disengage lever gives the operator control of the planer at all times. Worn cutter assemblies reportedly can be changed in less than 3 minutes. Large rubber-tire wheels enable the operator to move the unit easily over the work area.

For further information write to the Equipment Development Co., Inc., Dept. C&E, 2700 Garfield Ave., Silver Spring, Md., or use the Request Card that is bound in at page 18 of this issue. Circle No. 12.

New line of wear points for digging machines

New Shark Fin wear points that are said to provide maximum wear with minimum maintenance costs for the contractor have been developed by the Hensley Equipment Co., Inc.

According to the manufacturer, the new wear points offer complete coverage for all digging or ripping machines—shovels, draglines, backhoes, rippers, and trenchers.

Heat-treated by the latest methods, the Hensley Shark Fin points are Brinnell-tested for controlled hardness and uniformity, the manufacturer reports.

Self-sharpening and quick changing, the wear points are designed to decrease digging resistance, keep points sharp, and protect shanks. They are cast from a new super-strength abrasive-resistant alloy steel for longer wear and low-cost operation, according to Hensley officials.

For further information write to the Hensley Equipment Co., Inc., Dept. C&E, 800 Peralta Ave., San Leandro, Calif., or use the Request Card that is bound in at page 18. Circle No. 127.



Using 4-yard bucket, new 900 Series AMERICAN proves its superior performance in limerock for Newberry, Corp., Newberry, Florida... a subsidiary of Duval Eng. & Contr. Co.

"best balanced machine in its class"

That's what T. B. Bibby — veteran operator with 38 years on dragline work — has to say about the 900 Series AMERICAN pictured here.

New from the ground up, the 900 Series AMERICAN combines the best of today's operating features, plus years ahead advantages not available in any other 4 1/2-yard excavator. For example:

Telescoping axles on the 900 Series let you extend crawlers outward an extra 2 1/2 feet overall for greater full-circle operating stability. Crawler side frames can be detached by simply removing two large bolts... greatly speeds knock-down for travel. Continuous, deep-section deck channels, 4 feet deep at center, give you a machinery deck of unmatched strength and rigidity. Extra-wide drums permit single layer wrapping with 90 or 100 ft. dragline boom.

There's much more to tell about this new and important entry into the excavator field... graduated air controls... 18" ground clearance... choice of direct drive, single or 3-stage torque converter... independent swing... power load lowering. See your AMERICAN distributor — he'll help you analyze the 900 Series in terms of profit-potential on your type of work.

CC-711

EXCAVATORS
1/2 to 4 1/2 yds.
CRANES
12 1/2 to 110 tons

DERRICKS-HOISTS
to 800 tons
REVOLVER CRANES
to 400 tons

FORGED FITTINGS
FOR WIRE ROPE
AND CHAIN
(Crosby-Laughlin Div.)

AMERICAN
AMERICAN HOIST
and DERRICK COMPANY
ST. PAUL 7, MINNESOTA

For more facts, use Request Card at page 18 and Circle No. 325

Hyster's Model M600A Straddle Truck carrier features an all-hydraulic lift system.

Carrier features hydraulic lift

A new 30-ton Straddle Truck carrier said to handle with the ease of a carrier half its size has been announced by the Hyster Co. The rig has a load capacity of up to 60,000 pounds.

Among features of the Model M600A is an all-hydraulic lift system that reportedly eliminates mechanical linkage, sprockets, and chains. Two high-pressure pumps, one for load lift and the other for shoe swing and steering, are said to



Lightweight radio has 3-mile range

A new, all-transistorized portable 2-way citizens' band radio with a range of up to 3 miles is available from Ray Jefferson, Inc.

Named the Spokesman Model 100, the radio is similar in appearance to a telephone, and weighs approximately 3 pounds. Full-range power is made possible by a built-in 1-watt transmitter.

The Spokesman features complete crystal control, a telescoping antenna, independent speaker, high-sensitivity carbon microphone, nonbreakable high-impact case, and a press-to-talk feature.

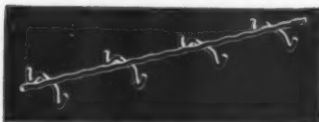
(Continued on page 40)

**TIME
SAVED
TWICE!**
with

SYLGAB

Continuous BAR BOLSTER SUPPORTS

1. The right material at the right time. No delays due to late delivery or mixed-up shipment.
2. Designed for speedy, easy installations. Allows fast pouring due to high rigidity.



A RUGGED SUPPORT FOR SLAB REINFORCEMENT

Made in 5' lengths of hard steel wire supporting bar with wire legs spaced either standard 5" distance or directly under each slab rod (4" min.)

Member Concrete Reinforcing Steel Institute

Manufacturers of Steel and Wire Accessories for Concrete and Fire-proof Construction.



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STEEL & WIRE CORP.
79-05 Cooper Ave., B'klyn 27, N. Y.

BEAM CLIPS • SPECIAL COLUMN CLIPS
EXPANSIBLE CLIPS
STRAIGHT AND COIL WIRE
HAIRPIN CLIPS • TOGGLE HANGERS
FORM SPACERS • BAR ACCESSORIES

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For more facts, circle No. 326

provide instant lift response.

Power is supplied by one of two selected power plants—a Continental 192-hp 6-cylinder gasoline engine or a Continental 172-hp diesel. A heavy-duty truck-type transmission or a power-shifted constant-mesh transmission with torque converter is available.

The frame is made from formed and fabricated high-tensile-strength steel, arc-welded into a single, unitized construction. The box-frame

design provides maximum rigidity, reduces weight, and increases carrying capacity, according to the manufacturer. Over-all length is 229 inches. Standard package sizes from 60 inches high x 58 inches wide to 84 inches high x 82 inches wide are available, or special package sizes can be designed.

For further information write to the Hyster Co., Dept. C&E, P. O. Box 847, Danville, Ill., or use the Request Card at page 18. Circle No. 44.

Get more out of your maintenance dollar!

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GROUSERS:

Added strength of fine alloy steel in the lower section of bar lug and sand trap gives 25% greater impact resistance than original equipment. Deep heat treatment combined with high frequency electric induction tempering assures long wear in even the most severe operations.

ROLLERS:

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DALLAS: 1357 Walton Walker Blvd. (FE 1-1551)
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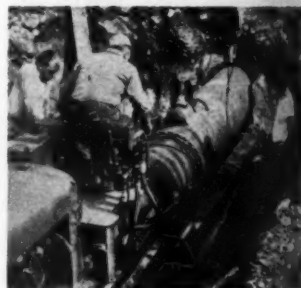
WESTRAC Co.
1309 WEST SEPULVEDA BLVD.
TORRANCE, CALIFORNIA

For more facts, use Request Card at page 18 and circle No. 327

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16-TD DRILLS to 16" DIAMETER
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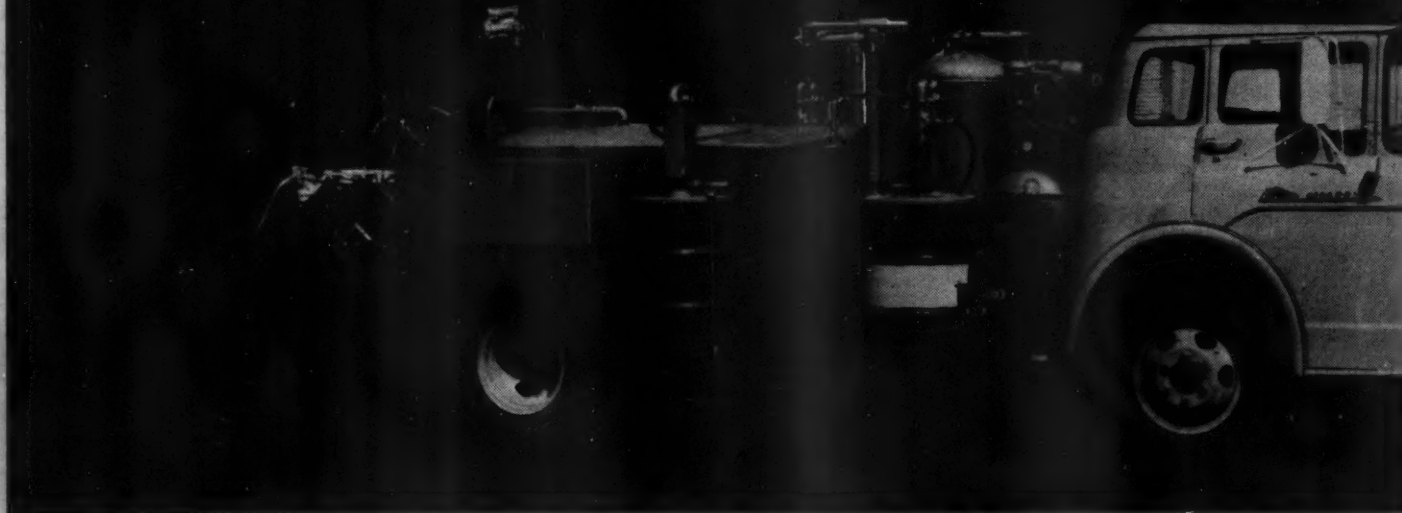


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SALEM TOOL CO.**
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For more facts, circle No. 328

CONTRACTORS AND ENGINEERS

**NOW... CUSTOM DESIGN
YOUR LUBE RIG
WITH STANDARD EQUIPMENT**



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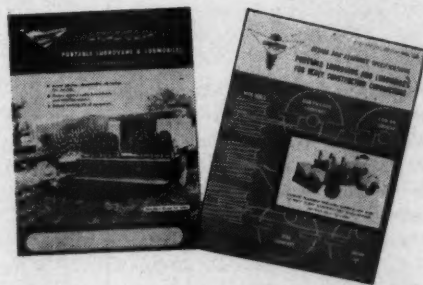
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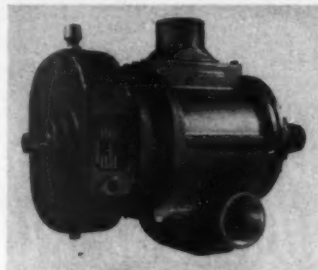
For more facts, use Request Card at page 18 and circle No. 329



New compressor units for unloading cement

Specially developed for heavy-duty bulk unloading, as in the pneumatic unloading of cement, are two new portable CycloBlowers, products of the CycloBlower Co. The units will provide air at pressures up to 16 psig in continuous operation or up to 20 psig in intermittent operation. The Model A5CDL9 is driven by power takeoff; the Model A5CDL12 by separate gasoline engine.

Though pressures may be higher



than with ordinary pneumatic unloading systems, horsepower requirements are not substantially increased

because of CycloBlower's twin screw-type rotors, states the manufacturer.

The Model A5CDL9, driven by the tractor power-takeoff shaft at 1,200 to 1,800 rpm, has an air-moving capacity of 300 to 500 cfm. The Model A5CDL12, for trailer mounting, is driven by a 50-hp gasoline engine at 2,400 to 2,800 rpm. It operates within the same cfm range as A5CDL9.

For further information write to the CycloBlower Co., a subsidiary of Gardner-Denver Co., Dept. C&E, York, Pa., or use the Request Card at page 18. Circle No. 80.

(Continued from page 94)

talk button. It operates on 9 "C" cell standard flashlight batteries that reportedly provide over 50 hours of continuous use. Special adapters are available for use with 117-volt ac or 12-volt auto batteries.

For further information write to Ray Jefferson, Inc., a subsidiary of Jetronic Industries, Dept. C&E, Main and Cotton Sts., Philadelphia 27, Pa., or use the Request Card at page 18. Circle No. 5.

Announce new models of worm-drive saw

Skil Corp. announces three new versions of its rear-handle, worm-drive Skilsaw models. The new versions have retained the familiar model numbers—367, 77, and 825—with blades of 6½, 7¼, and 8¼ inches to give cutting depths of 2½, 2½, and 3 inches, respectively.



The saws all feature Skil's burnout-protection motors, which are said to protect against motor burnouts even under excessive and frequent overloads. Among new features is an automatic oil-level control. An air-flow hood directs a cooling air stream over the gear case. This air stream also keeps sawdust off the line of cut. An exclusive push button engages and locks the saw shaft for fast, easy blade changing.

The die-cast top handle is plastic-covered for more comfortable, cooler handling. A new and stronger steel foot of heat-treated spring steel is designed to resist bending and twisting. Predrilled holes make it easy to install a water feed yoke for masonry cutting, according to Skil.

For further information write to the Skil Corp., Dept. C&E, 5033 Elston Ave., Chicago 30, Ill., or use the Request Card that is bound in at page 18. Circle No. 65.

BIG POWER BIG CAPACITY

new SS-40

For moving loads up to 125,000 pounds on long, high-speed scraper hauls, the new Model SS-40 has already proved it's away ahead of any other big scraper in productive capacity. Powered by a 12 cylinder GM diesel of 432 h.p. with 4-speed Torqmatic Drive, this "Euc" moves big payloads at speeds up to 34 m.p.h. Stability and good weight distribution of the six-wheel SS-40 permit faster safe travel speeds that save time on every cycle. With its new push-out, roll-out ejector this "Euc" is the first super scraper able to dump big loads in a hurry.

Teamed with the TC-12 "Twin" Crawler for push loading, the SS-40 gets a heaped load in its low, wide bowl and is on the haul road fast. This big power, big capacity "Euc" equipment is your best bet for high production and low yardage costs on dams, highway work, other heavy construction and stripping operations. Ask your dealer for specifications and technical data on the SS-40 Scraper and TC-12 Crawler.

EUCLID Division of General Motors, Hudson, Ohio
Plants at Cleveland and Hudson, Ohio and Lanarkshire, Scotland

Maneuverability and 425 net h.p. make the TC-12 with full-power shift tops for pusher work, heavy dozing and ripping tough material.

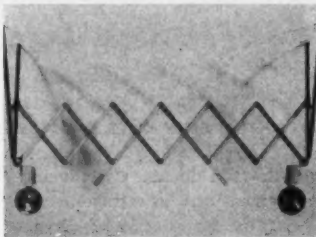
New radial design of apron and a push-out, roll-out ejector speed up dumping ... gets rid of big loads, even sticky material, fast and clean.



Announce improvements on safety barricade

Rubber-grip handles have been added to the standard Guard-Gate safety barricade to provide greater ease in opening, closing, and carrying, according to the manufacturer, West Side Iron Works. In addition, a snap-lock chain latch has been added to secure the barricade when in collapsed or closed position.

The compact, all-steel barricade is easily transported and can be quickly set up as a temporary warning device



on highway or other construction projects, the company reports.

Guard-Gate is available in three models of 4, 6, or 8-foot lengths. It

stands 36 inches high in open position, not counting flags, and weighs 24 pounds, minus flasher lights.

For further information write to the West Side Iron Works, Inc., Dept. MJ, Dept. C&E, 327 Front Ave. N.W., Grand Rapids, Mich., or use the Request Card at page 18. Circle No. 88.

Versatile welding torch has four applications

Linde Co. announces the new 500-amp ST-5 torch for all four types of welding—spray-arc, short-arc, plug,



and spot welding. According to the manufacturer, the torch can be used with all Sigmatic welding machines.

An important feature is the unit's in-line design; all service lines (gas, power, water, and wire) enter the torch through the rear of the barrel. As a result, they can be supported on the welder's shoulder for balanced torch operation.

The ST-5 reportedly has a highly efficient cooling system that brings water directly into the nozzle body to cool the contact tube, permitting continuous operation at currents as high as 500 amp, even with carbon-steel welding wire. The aluminum-alloy pistol-grip handle is removable.

For further information write to the Linde Co., Division of Union Carbide Corp., Electric Welding Dept., Dept. C&E, 270 Park Ave., New York 17, N. Y., or use the Request Card at page 18. Circle No. 61.

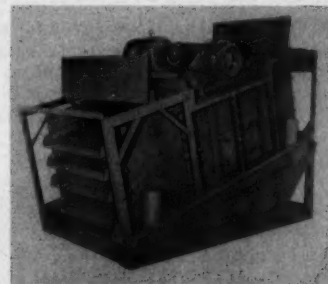
Fully enclosed models of vibrating screens

New fully enclosed models of its vibrating screens have been announced by the Deister Machine Co. Designed for use in hot-mix asphalt plants and quarrying and cement operations where extremely dusty conditions prevail, the enclosures can be furnished on any screen in the Deister line.

The new enclosure design provides maximum protection against dust, the manufacturer reports, yet affords ready accessibility to all working parts of the screen, including spring and rubber mounts and snubber assembly.

Enclosure panels are fabricated of heavy-gage steel. Held securely in place by swing bolts, they can be removed in a matter of seconds.

For further information write to the Deister Machine Co., Dept. C&E, 1933 E. Wayne St., Fort Wayne 4, Ind., or use the Request Card at page 18. Circle No. 56.



This fully enclosed 4 x 12-foot Deister Type UHS vibrating screen has side and back panels off to show accessibility to screen-cloth tension assemblies.

For more facts, use Request Card at page 18 and circle No. 330

TY BIG PRODUCTION



52 YARDS
HEAPED



34 M.P.H.
LOADED



432 H.P.
V-12



PUSH-OUT, > EJECTOR
ROLL-OUT >



EUCLID

FOR MOVING EARTH, ROCK, COAL AND ORE

Ty-Sa-Man Machine Co. offers this new traveling cutoff saw for cutting prestressed-concrete plank to length. The unit rides the plank itself like a rail.



Traveling saw cuts prestressed members

Ty-Sa-Man Machine Co. announces development of a new traveling cutoff saw that cuts prestressed-concrete plank to length.

Using the concrete plank itself as a rail, the self-propelling saw moves to the desired cutoff point where a cross-movement 36-inch diamond or abrasive blade, powered by a 20-hp motor, makes the cut—as deep as 12 inches if necessary.

Power for the chain-driven traveling wheels is supplied by a 1-hp motor. The cutting blade is mounted in a hand or motor-driven raise-and-lower arbor and is V-belt-driven by the main motor.

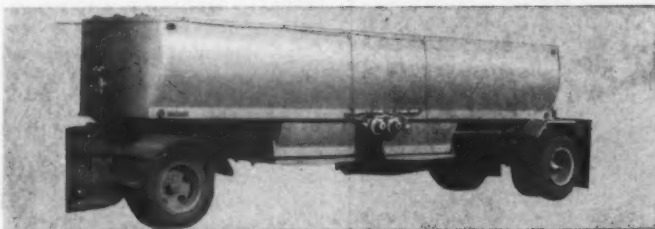
For further information write to the Ty-Sa-Man Machine Co., Dept. C&E, 1191 White Ave., Knoxville, Tenn., or use the Request Card at page 18. Circle No. 58.

Fruehauf Construction Trailers Are BIG MONEY MAKERS!



HOIST-TYPE DUMPS—

wide range of designs in steel or frameless aluminum with weight savings up to 3,500 pounds. Single or tandem axle. Single or twin front-mounted or under-mounted telescopic hoists. Available with sand and gravel or rugged rock bodies. Toughest units on the market!



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rugged rough-terrain units. They are excellent for hauling sand, gravel or aggregates. Frameless high-tensile steel body. Tandem models with 14 to 30 cubic yard payloads for high-profit, lower-cost hauling.



PLATFORM TRAILERS—designed for years of rugged service. Fruehauf Platforms range from brawny 50,000-pound capacity Workhorse units to lighter-weight multi-purpose units. Lengths from 21½ feet for single axle units to 42 feet for tandems.



HIGH-TEMPERATURE INSULATED TANKS—engineered to haul bigger payloads of asphalt, road oil, or similar products. Tank capacities range up to 9,000 gallons. Available in steel or weight-saving aluminum. Safely transports liquids with temperature requirements ranging from 150° to 450° F.



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Name _____ (please print)

Company _____

Address _____

City _____ State _____



For more facts, use coupon Request Card at page 18 and circle No. 331

Engine preheater has thermostatic control

The Phillips Mfg. Co. announces a new Zero Start thermostatically controlled external tank-type engine preheater.



The thermostatic feature of the new model serves as an automatic shutoff, should the engine reach preset temperature or should the unit have been improperly installed so as to restrict coolant circulation. With this heater, the coolant is warmed and circulated throughout the entire engine by thermosiphon action. This action, the manufacturer states, warms all moving parts of the engine and aids fast starting.

Zero Start thermostatic heaters are available in six models, from 450 to 2,000 watts, either 115 or 230 volts.

Each unit is packaged with complete fittings for easy installation.

For further information write to the Phillips Mfg. Co., Dept. C&E, 8200 Grand Ave. S., Minneapolis 20, Minn., or use the Request Card at page 18. Circle No. 7.

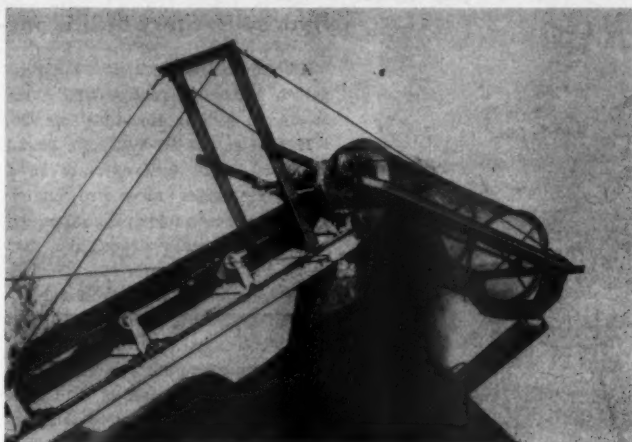
Rotary screener unit for soil shredders

A new Model R rotary screener attachment is announced by the Lindig Mfg. Co., Inc., as an accessory for the company's Model L soil shredders.

According to the manufacturer, the Model R screener makes it possible to combine four jobs—feeding, shredding, screening, and loading—into

CONTRACTORS AND ENGINEERS

The Lindig Model R rotary screener attachment permits the company's soil shredders to carry on four operations at one time.



one easy operation, with just one operator.

The screener mounts on the loading conveyor and is driven from the conveyor head shaft through a chain drive and right-angle gear speed reducer.

For further information write to the Lindig Mfg. Co., Inc., Dept. A, Dept. C&E, 1875 W. County Road "C," St. Paul 13, Minn., or use the Request Card that is bound in at page 18. Circle No. 74.

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2100 West Dempster Street, Evanston, Illinois

For more facts, use post card bound here or Request Card at page 18 and circle No. 332

New oil available for hydraulic systems

A hydraulic oil designed to help insure peak performance from hydraulic systems even under extreme operating conditions is announced by Lubrication Engineers, Inc.

Known as LE hydraulic oil, it is said to possess the following characteristics:

1. maintenance of proper operating viscosity over a wide temperature range;

2. extra-high film strength to resist the extreme pressures prevalent in hydraulic systems and thus eliminate excessive wear of moving parts;

3. a naturally high resistance to heat, oxidation, and foaming, plus the addition of anti-oxidation and anti-foam agents to further ensure maximum protection against internal damage to hydraulic systems.

For further information write to Lubrication Engineers, Inc., Dept. C&E, P. O. Box 7128, Fort Worth 11, Texas, or use the Request Card that is bound in at page 18 of this issue. Circle No. 21.

New machine bends web joists, stirrups

A machine for bending open webs in steel joists that support floors and roofs in building construction, as well as the stirrups used to support the joists, is announced by Wallace Mfg. Co.

The No. 35 bender drives under full power both clockwise and counterclockwise (right or left). It is operated by one hydraulic foot valve, permitting the operator full use of his hands for positioning the work.

Two adjustable stops for clockwise and counterclockwise bending are supplied. The degree of bend is set and remains constant for repetitive bending.

Height of the machine from floor to table top is 28 1/4 inches; required floor space (with no allowance for swing) is 58 x 38 3/4 inches. Approximate weight is 1,850 pounds.

For further information write to the Wallace Supplies Mfg. Co., Dept. C&E, 1300-06 W. Diversey Pkwy., Chicago 14, Ill., or use the Request Card at page 18. Circle No. 98.



The Wallace No. 35 open web joist and stirrup bender is operated by a single foot lever, leaving the operator's hands free to position the work.

Houston Tool Co. offers this self-propelled hydraulically operated rotary drilling rig for a variety of drilling operations.



Hydraulic rotary drill is one-man operated

A one-man-operated, self-propelled, hydraulic, rotary drilling rig is offered by the Houston Tool Co.

Known as the HI-VACuum, Model H.D. 250-S, the unit operates on a 30-hp 4-cylinder air-cooled engine with four speeds forward and one reverse. Hydraulically steered, it is said to be highly maneuverable. The rig has a tongue and hitch, and the hydraulic system is neutralized by a simple valve for easy highway towing.

Carrying all of its own equipment and tools, plus 250 feet of drill pipe, this new rig is completely self-sustaining, the manufacturer reports. Twin, clear-plastic tubes provide continuous examination of the stratum being drilled and make grab samples

easy without interrupting drilling. In addition to vacuum drilling, the Model H.D. 250-S drills with forced air, forced water, reverse water, and vacuum with water. Drive core sampling, augering, diamond core drilling with vacuum or with forced water, bucket drilling, and casing driving while drilling are other operations it can perform.

The drill is rated 2½ to 3-inch-diameter holes to 250 feet. It is said to drill at any angle and in all formations.

For further information write to the Houston Tool Co., Dept. C.H., P. O. Box 251, Santa Susana, Calif., or use the Request Card at page 18. Circle No. 96.

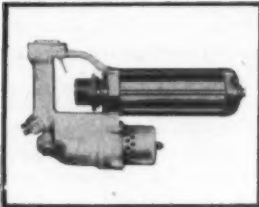
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SYNTRON

PORTABLE

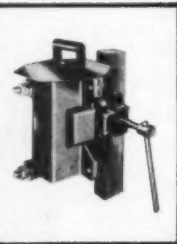
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HAMMER DRILLS

- Quality-built
- Easy to handle
- Low maintenance



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AND FLOATS



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Whether it's drilling holes in concrete, masonry, or rock; chipping or breaking rock and concrete; or settling and finishing concrete, there is a Syntron Quality-built Power Tool for almost every construction or maintenance job. Syntron Power Tools are fast, powerful, dependable, versatile and will work on job after job, day after day, with a minimum of maintenance.

Syntron Power Tools will save you time and money. Depend on Syntron Quality-built Power Tools for efficiency and long service life on every job.

Write for complete
catalog data today.

6113

SYNTRON

SYNTRON COMPANY

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For more facts, use Request Card at page 18 and circle No. 333

New suspension unit for construction hats

A new suspension assembly—said to be stronger, lighter, and more comfortable—is now being incorporated in safety hats marketed by The Boyer-Campbell Co. of Detroit, Mich.

The new design requires only three components—the sweatband, the sizing band, and the supporting crown. Reportedly 30 per cent lighter

than conventional units, the new suspension is fabricated exclusively from polyethylene fortified against cracking under prolonged ultraviolet exposure. It has been redesigned to improve comfort and fit, and to provide better distribution of impact shock, the manufacturer reports.

The assembly will fit head sizes 6½ to 8, and features a 3-position

**SNATCH
BLOCKS**

DESIGNED FOR
EASY STRINGING UP

All Steel Construction, extra large center pins, sheaves grooved to proper line size.

Opening features permit easy insertion of line while block is suspended.

Extra large range of sheave sizes and capacities.

Be Specific . . . Get McKissick

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McKISSICK PRODUCTS COMPANY
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For more facts, use Request Card at page 18 and circle No. 334

CONTRACTORS AND ENGINEERS



adjustment for suspension height and angle.

For further information write to The Boyer-Campbell Co., Dept. C&E, 801 W. Baltimore, Detroit 2, Mich., or use the Request Card at page 18. Circle No. 40.

Introduce new compact 2-way radio unit

General Electric is offering a new line of lightweight, compact 2-way radios for the construction market. Fifteen-watt models are now in production, and are marketed under the name General Electric Pacer.

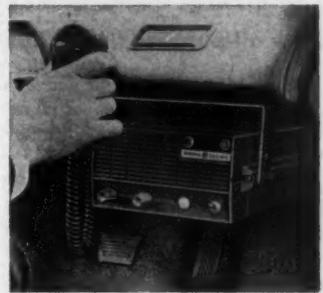
The new equipment uses vacuum tubes and simplified circuits in a

design said to achieve lower battery drain than previously attained in tubed equipment. Designed for operation in low band (27-50 mc) and high band (150-174 mc), the units are said to have full-quality VHF-FM audio.

The G-E Pacer has 15 tubes and 2 transistors. When the 15-watt unit is on, battery drain is only 4.2 amps. Special generators and heavy-duty batteries are not needed.

The new unit is 4¼ inches high, 7¾ inches wide, and 12½ inches long. It weighs 10 pounds.

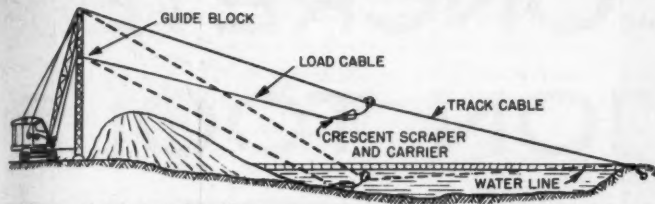
For further information write to General Electric Communication Products Dept., Section P, Dept. C&E, P. O. Box 4197, Lynchburg, Va., or



General Electric's new Pacer 2-way radio is the smallest in the company's line of 2-way communication units.

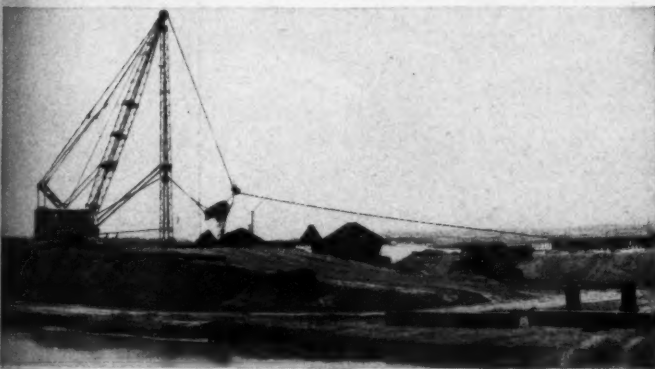
use the Request Card that is bound in at page 18 of this issue. Circle No. 43.

Crescent Scraper and Track Cable Extends Dragline Range, Cuts Costs



The reach of your dragline-crane can be greatly extended by using its hoisting line as a track cable for a Crescent Scraper Bucket and carrier assembly. This arrangement also permits deeper digging and recovery of material from soft ground without the use of mats or the hazard of undermining the crane.

A Crescent of greater capacity than the original dragline bucket can be used because it is much lighter size for size. When the boom is supported by an auxiliary strut as shown in the drawing, a Crescent Scraper Bucket of still greater size can be used.



▲ A 4-yd. Crescent scraper reclaiming material from an underwater pile 300 ft. away. The bottom-

less scraper hauls at ground level to an elevated hopper over truck roadway. Crescent is lifted from hopper and gravity returned to pile by tensioning the track cable. The cable is moored to a float anchored about 500 ft. out in the bay.

◀ Crescent returning 350 ft. to excavation point. Maximum return by gravity is provided by holding the crane boom almost upright. Track cable is hooked to dozer and two anchors. Dozer is used to laterally shift tail assembly.

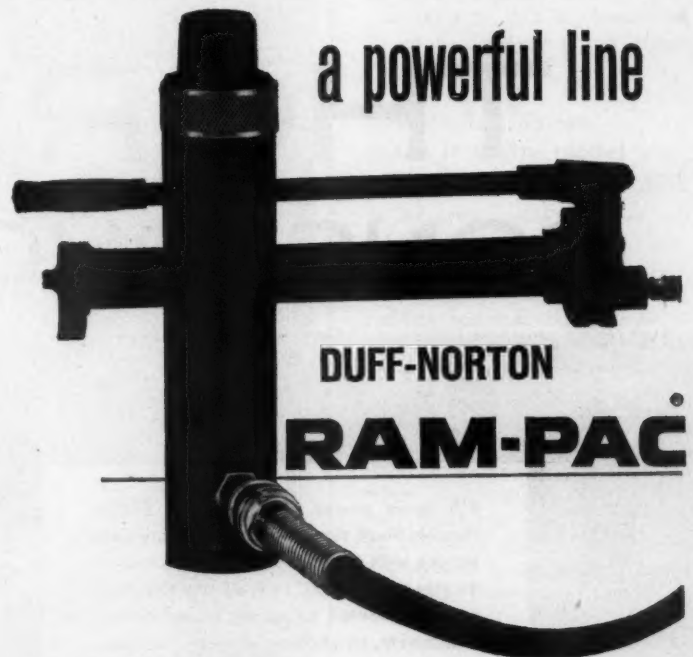
Write or call giving make, model number and boom length of your dragline-crane. We will tell you what size Crescent is best suited to your equipment. Field Report No. 231 and Catalog J give more information on Crescent and crane setups.

SAUERMAN

BROS., INC. 624 SO. 28th AVE. BELLWOOD, ILL.
Linden 4-4892 • Cable CABEX—Bellwood, Illinois

Crane, Hoist, and Traction Cableways • Service Blocks

For more facts, use Request Card at page 18 and circle No. 335



a powerful line

DUFF-NORTON
RAM-PAC

HYDRAULIC RAMS AND PUMPS—12 RAMS, 5 PUMPS. CAPACITIES 10 TO 100 TONS



The complete Duff-Norton Ram-Pac line gives you the power source you need—where you want it and with little effort.

The 12 rams may be used with hand or power pumps to apply from 10 to 100 tons of force in any direction in either portable or permanent applications.

They are used to adjust, test, bend, pull, push and lift—also

in hydraulic jigs, fixtures and presses. Multiple ram units may also be used in unison.

The five Ram-Pac pumps include 2 hand pumps, an air hydraulic pump, an electric pump and a gasoline powered pump. For information on this powerful, versatile Ram-Pac line of rams, pumps, attachment units, accessories and fittings ask your distributor or write for Bulletin AD-90S.

DUFF-NORTON JACKS

DUFF-NORTON COMPANY

Four Gateway Center, Pittsburgh 22, Pennsylvania

The Canadian Duff-Norton Co., Ltd., Toronto 6, Ontario

DUFF-NORTON JACKS
Ratchet • Screw
Hydraulic • Worm Gear



COFFING HOISTS
Ratchet Lever • Air
Hand Chain • Electric

For more facts, use Request Card at page 18 and circle No. 336

New all-purpose trailer has lower deck height

Rogers Bros. Corp. announces a new model, the HFT25DX, in its extendible high flat line of trailers. The unit is equipped with 10.00 x 15, 12-ply nylon tires and has a drop deck that produces a 44-inch deck height.

According to the manufacturer, advantages of the new model include the following: the 44-inch deck height—12 inches less than that of a con-

ventional high flat—allows handling of higher loads without special hauling permits; the low center of gravity eliminates much of the side sway created by high loads; and the unit is available with a choice of rear-axle suspensions—spread tandem, sliding tandem, or triple-axle tandem.

The new trailer is designed to haul bulky, high loads with the deck in closed position (35 feet) and long,



unwieldy loads with the deck in open position (45 or 55 feet).

For further information write to

the Rogers Bros. Corp., Dept. C&E, 108 Orchard St., Albion, Pa., or see the card at page 18. Circle No. 94.

Your best bet for better concrete at lower cost

THOR CONCRETE CONSTRUCTION TOOLS

4½ horse power GHV Gasoline Engine Flexible Shaft Vibrator for heavy duty field service with self-contained Briggs-Stratton 4-cycle engine. 360° swivel base standard, can be mounted on sturdy wheel-barrow attachment, as shown, for easy transporting. 2½" head, shaft lengths to 30-feet. Beat high costs now! See your Thor distributor in the Yellow Pages. Or write Thor Power Tool Company, Aurora, Illinois.



The Cutter
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ANAPOLIS •
ARK • NI
MOND •
MTO, ON

The Cutler Repaver is said to perform all operations—grading, leveling, relaying, and compacting—connected with maintenance of an asphalt highway.



Introduce new machine for asphalt maintenance

The Cutler Repaver, a new machine for use in maintaining asphalt highways, has been announced by the Cutler Engineering Co. The unit is said to combine in one machine all the processes necessary to repair any asphalt highway and resurface with a new 50-pound hot-mix seal coat.

Heating is accomplished in an insulated lined grid chamber using four air-atomizing 10-gph diesel oil burners. These burners use direct, radiant,

and convected heat.

Leveling is carried out by using a conventional grader blade, actuated by hydraulic cylinders working against mechanical stops. The Repaver finisher spreads a windrow of hot-mix to form a smooth sealing mat. Heated compaction smooths the surface and eliminates the need for a tack coat. Repaving reportedly can be carried on at the rate of 200 to 300 square yards per hour.

The Cutler Repaver is powered by a 6-cylinder engine using an automatic reversing transmission, a 4-speed gear box, and a heavy truck differential drive.

For further information write to the Cutler Engineering Co., Dept. C&E, 5435 W. 63rd St., Chicago 38, Ill., or use the Request Card at page 18. Circle No. 91.

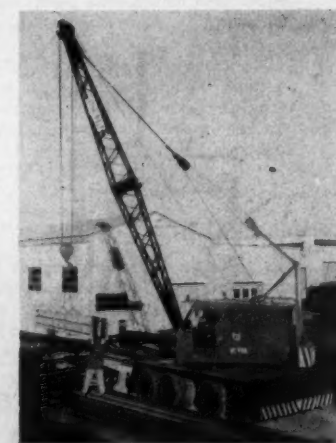
Rubber-tire, 35-ton crane in utility model

A new rubber-tire, self-propelled, 35-ton utility crane has been announced by Link-Belt Speeder Corp.

The upper mechanism, basically the same as on other 98 Series models, features complete independence of all machine functions. Other standard and optional features include Speed-o-Matic power hydraulic controls; power load-lowering (reversing) clutches for either or both main drums; independent swing-and-travel; independent high-low speed boom hoist with clutches for power up and down; and gasoline or diesel engines with hydraulic couplings or torque converters.

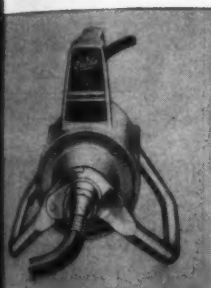
The 4-axle, 8 x 4 drive carrier has a turning radius of 33 feet and four speeds (forward or reverse) ranging from 1 to 7 1/2 mph. The carrier's 10-foot 6-inch wheelbase and 11-foot 1-inch over-all width are said to provide a stable working base for operating on rubber.

For further information write to the Link-Belt Speeder Corp., Dept. C&E, 1201 Sixth St. S. W., Cedar Rapids, Iowa, or use the Request Card at page 18. Circle No. 62.



Link-Belt Speeder's Model UC-98A 35-ton self-propelled utility crane is pictured handling structural steel.

For more facts, use Request Card at page 18 and circle No. 337



4 horse power EHV Electric Flexible Shaft Vibrator delivers rugged impact at 10,000 to 12,000 vibrations per minute for heavy duty concrete placing. 2 3/4" vibrator head. 5-ft. and 10-ft. shaft lengths, can be connected for efficient use up to 30-feet. Compact, easily carried, or dragged on adjustable runners. Equipment interchangeable with GHV gasoline vibrator.



CV-3 MOTOR-IN-HEAD ELECTRIC VIBRATOR gives high speed vibration in stiffest mixes. 25% more power for maximum compaction. Motor and vibrating units built snugly into 2 3/4" head. Truly a one-man vibrator. 5 operator hose lengths.



SMALL ACCESS POURS the Thor ELV electric vibrator is the answer. 4 small sizes (1", 1 1/4", 1 3/8", 2") 2 shaft lengths with connections for extensions.

EASY HANDLING Thor power trowels for work efficiency and operating speed, feature exclusive blade-center suspension. Heavy duty construction. 29" and 39" models.

THOR VIBRATORY FINISHING SCREEDS feature revolutionary "StraPaction," lightweight and low initial cost. Requires no special rails or forms. Models from 4' to 30'.

PUT POWER WHERE YOU NEED IT, FAST. Thor gasoline engine generators furnish power for tools, lights, electric vibrators. 1500 watt set shown, also 2500, 3000 watts available.



THOR POWER TOOL COMPANY
AURORA, ILLINOIS

ALBANY • BIRMINGHAM • BOSTON • BUFFALO • CHICAGO
CINCINNATI • CLEVELAND • DENVER • DETROIT • HOUSTON
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TORONTO, ONT., CAN. • EXPORT DIVISION, NEW YORK CITY





This new "Quick-Way" 1/2-yard crawler shovel features a tractor-type undercarriage said to permit a great amount of travel with less than usual wear.

Offer crawler shovels in 3/8 to 1/2-yard sizes

"Quick-Way" Truck Shovel Co. announces a new series of crawler-mounted shovels in the 3/8 to 1/2-yard-capacity class. The new units are the 85-BC 3/8-yard, 100-BC 3/8-to-1/2-yard, and the 125-BC 1/2-yard models.

The machines feature a new tractor-type undercarriage said to permit a great amount of travel without usual wear. They have independent swing and travel, with 2-speed traction forward or reverse.

New in design are the heavy-duty, double spring-positioned shock-absorbing idler sprockets. There are six track rollers and two idler rollers on each side. This assembly makes for smooth, shock-absorbing travel over the roughest working surfaces, according to the manufacturer.

The new crawlers feature a heavy-duty electrically welded car body, precision-machined swing table, and protected internal machine-cut gear circle. The roller path is double-bevel machined to receive crowned conical Timken hook rollers. All underframe lubrication points can be reached from a single position, the company reports.

For further information write to the "Quick-Way" Truck Shovel Co., Dept. C&E, 2401 E. 40th Ave., Denver 1, Colo., or use the Request Card at page 18. Circle No. 86.

ONE COMPANY DOES A LOT MORE



ANOTHER PROBLEM SOLVED BY AIRPLACO

An Airplaco Concrete Placer being used to pour concrete in construction of tanks for new water treatment plant. Concrete is "air extruded", through tubing from transit-mix trucks, up through center of tank. Tubing revolves full 360° to all points. Deep cut in foreground makes truck-crane-and-bucket pour impossible. Man in orange hat is the Airplaco Man-on-the-Job.



AIRPLACO Men on the Job

When Airplaco equipment goes out on a job, it is backed up by Airplaco factory trained service men. Airplaco's Men-on-the-Job are there to train and certify the operating crew so that you get peak performance at all times. This is the "extra effort" that means extra profit for you.



AIRPLACO "Advanced Design" Equipment

Years of research, testing and specialization in the field of pneumatic placement, make Airplaco equipment the most flexible, most versatile equipment you can operate. Every piece of Airplaco equipment, from the smallest concrete gun through a complete line of placement equipment, to the largest Concrete Placer, is job-rated to deliver quality concrete with speed, ease and economy.

Put AIRPLACO on Your Team

All of the experience and knowledge gained over the years, and on many, many jobs, is available to you without cost or obligation. Our Field Engineers are ready to tackle your toughest concrete problem and show you how AIRPLACO can save you time and money . . . and best of all . . . make a profit. Write, wire or phone.

PLUS FREE BROCHURE



For more facts, use Request Card at page 18 and circle No. 338

Announce versatile new dozer blade

The Model 6H Varidozer, a new utility dozer blade with a wide range of hydraulically controlled blade positions, is announced by the United Mfg. Co.

According to the manufacturer, the Varidozer can be changed in seconds from a straight blade to an angle blade, forward V, reverse V, tilt blade, or any combination of these positions. The entire cycle of positions is controlled by four hydraulic levers mounted beside the operator's seat, giving him instant fingertip control of the blade, under full load or empty, while the machine

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NEENAH

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the
products
are
**GRAY and
DUCTILE
IRON
CONSTRUCTION
CASTINGS
of finest
QUALITY
FINISH
UNIFORMITY**



Delivery is prompt: we have huge on-hand stocks of standard items

PLUS
15,000 patterns
PLUS

a daily production capacity of 500 tons in our two plants.



Name's Neenah . . . if we make it it's a casting . . . and the best.

New 168-page catalog shows our line. It's sent promptly when requested.

**NEENAH FOUNDRY
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Chicago Office
5445 North Neva Ave., Chicago 31, Ill.

For more facts, circle No. 340

CONTRACTORS AND ENGINEERS

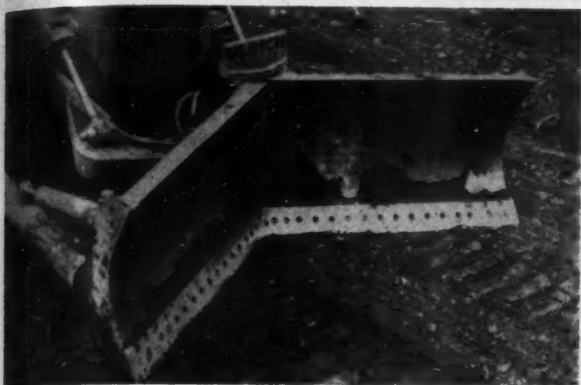
**PINGON
TICHAUER**

CLIMBING - RAIL
MOUNTED TOWER CRANES
FOR
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AGENTS - DISTRIBUTORS REQUIRED
PLEASE APPLY

M. TICHAUER S.A. 65 Champs Elysees PARIS 8

For more facts, circle No. 339



The new Ulrich Varidozer is quickly convertible to a number of different blade positions because of the hinge in the middle.

is moving in either direction.

The key to the Varidozer's versatility is the vertical hinge in the center of the blade, controlled by two rugged hydraulic push arms and two hydraulic tilt cylinders. The big hinge permits each of the two sections of the blade to move independently to any position from full 25-degree angle forward to a full 25 degrees to the rear.

The Model 6H is designed for Caterpillar D6 tractors. This model is the first of a series; Varidozers to fit larger tractors are planned for the future.

For further information write to the Ulrich Mfg. Co., Dept. C&E, Roanoke, Ill., or use the Request Card at page 18. Circle No. 93.

Portable arc welder is maintenance tool

A portable, medium-duty ac arc welder designed for maintenance welding applications has been added to its Murex line of welding ma-



chines by Metal & Thermo Corp.

The Model M 18 T-1 is a 180-amp unit mounted on heavy-duty wheels for easy moving. Full 80-volt open-circuit voltage permits welding with all types of electrodes from 1/16 to 3/16-inch diameter.

An automatic-balance volt-arc feature provides a deep penetrating arc at high ampere settings and a soft arc at low settings for light-gage metals, according to the manufacturer.

For further information write to the Metal & Thermo Corp., Dept. C&E, General Offices, Rahway, N. J., or use the Request Card at page 18. Circle No. 47.

Winslow TRUCK SCALES PIT AND PITLESS TYPES

Capacities: 15, 18, 20, 30, 40, 50, 60 and 70 tons.

For use at temporary and permanent locations, stockpiles, and by bituminous material contractors at the jobsite.



TYPE CS — PITLESS — PORTABLE

Write or phone
Dept. B-70 today
Phone North 1231

WINSLOW GOVERNMENT STANDARD SCALE WORKS, INC.
25TH & HAYTHORNE
TERRE HAUTE, IND.

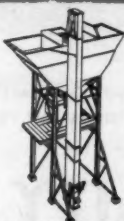
For more facts, use Request Card at page 18 and circle No. 342



Charge, Batch, Open the Gates on Profit with a Johnson Plant

Here are three transit-mix plants that cost little and offer a lot: easy erection, simple precision mix control; and years of service with a minimum of attention.

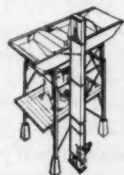
JUMBO



102-cu-yd of aggregate storage in 3-compartment bin.
155-185-bbl overhead bulk cement tank.
6-cu-yd Hi-Speed Concentric Batcher with independent cement scale and hopper.
315-380-bbl-per-hr cement elevator.

The Jumbo is the largest of the low cost transit-mix plants. It offers controlled discharge of aggregate and cement through two separate levers. Cement is discharged within the aggregates to increase pre-mixing and minimize dusting. Packaged design makes erection and servicing easy. Pneumatic cement charging system available for handling bulk cement.

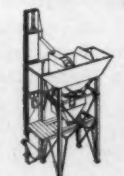
ECONO PLANT



45-cu-yd in 3 aggregate compartments. 58-70-bbl cement compartment.
200-240-bbl-per-hr cement elevator.
3-cu-yd concentric batcher with independent scale for cement weighing.
Charging height 30½ feet.

Econoplant easily meets toughest specifications at high speed. Low charging height makes it ideal for clamshell charging. Cement is discharged within aggregates. Cement compartment comes complete with low-pressure aeration system.

ROUST ABOUT



38-cu-yd aggregate in 3 compartments. 50-bbl cement compartment.
200-240-bbl-per-hr cement elevator.
3-cu-yd concentric batcher with independent scale for weighing cement.

Roustabout is designed for quick assembly and convenient trucking between jobs. Maximum width of largest section is 9 feet. Maximum erection lift is only 4½ tons. Entire plant can be up and working in less than a day.

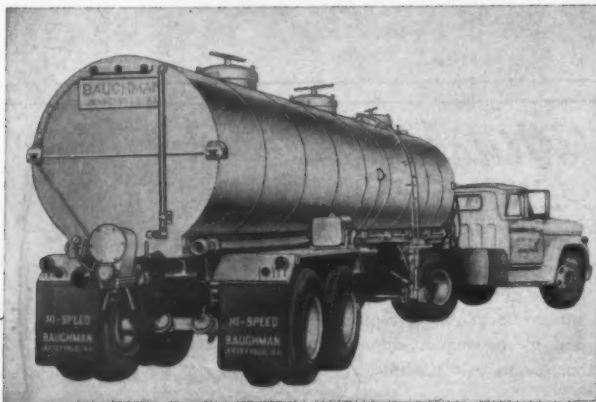


Johnson makes a variety of clamshell and concrete buckets, including special Lo-Slump buckets operated manually or by air. See your Johnson distributor for details.

C. S. JOHNSON CO.
Champaign, Ill. • Stockton, Calif.

A Division of
KOEHRING
Company

For more facts, use Request Card at page 18 and circle No. 341



A combination air and mechanical self-unloading system is featured by the Baughman Model PMCT-1 cement transport, as well as thorough clean-out regardless of transport position.

Cement transport offers high-speed unloading

A new model of the Baughman PMCT-1 cement transport is offered by the Baughman Mfg. Co., Inc.

The PMCT-1 is equipped for high-speed self-unloading by both pneumatic and mechanical means. The mechanical system reportedly can be used to discharge cement into a pit or onto a conveyor at approximately 2,000 pounds per minute. The air-discharge method, used when the cargo must be elevated, is said to unload at a rate of about 1,300 fpm. Cement can be raised to a height of 100 feet when the pneumatic system is used.

It is not necessary to park the PMCT-1 on level ground in order to

empty it. According to the manufacturer, a heavy-duty 9-inch auger that runs the full length of the body gives thorough clean-out, regardless of transport position.

An air cell over the auger provides easy starting; the auger is synchronized with the air stream to prevent overfeeding while using the air-discharge system. A check valve prevents cement from backing into the blower. Power for both auger and blower is supplied by an auxiliary engine.

In its standard version, the PMCT-1 is 32 feet long, 11 feet 1 inch high, and has 752 cubic feet of cargo space.

All discharge controls are conveniently located at the rear of unit, and the entire unloading operation can be handled by one man.

For further information write to the Baughman Mfg. Co., Inc., Dept. C&E, 192 Arch St., Jerseyville, Ill., or use card at page 18. Circle No. 4.



Geared by FULLER

Only eight hours transmission downtime per unit in approximately 2700 hours of operation over a period of 2½ years averages out to

99.71% AVAILABILITY!

A. F. Keyes Co., Inc., South Milwaukee, Wisconsin, is using Fuller 5-G-1520 5-speed Transmissions in four Le Tourneau-Westinghouse Scrapers on construction projects in southwestern Wisconsin. None of the four units has had more than eight hours of transmission downtime—and each has logged more than 2700 hours of operation.

Two of Keyes' L-Ws are Model B

Full Packs, and two are Model B BM-2s. The constant-mesh, spur-gear Fuller 5-G-1520s feature, as standard equipment, the Fuller air-actuated countershaft brake, which permits quick, easy up-shifts without double clutching. Also standard on the 5-G-1520 is the Fuller pressure lubrication and filtration system, which keeps gear oil clean, provides longer gear and bearing life and increases avail-

ability for your operation.

Bernard Schuh, Chief Mechanic for Keyes, says, "We're extremely pleased with both the performance and reliability of the Fuller 5-G-1520 Transmission. If you buy a good piece of equipment and take care of it, it's going to perform profitably for you. And that's certainly the case with the Fuller Transmissions in our LeTourneau-Westinghouse Scrapers.

FULLER TRANSMISSION DIVISION
EATON MANUFACTURING COMPANY
KALAMAZOO, MICHIGAN

Sales & Service: West. Dist. Branch, Oakland 6, Cal. • Southwest Dist. Office, Tulsa 3, Okla. • Automotive Products Co., Ltd., Brock House, Lougham St., London W.1, England, European Rep.
For more facts, use Request Card at page 18 and circle No. 343

New excavator-cranes to 50-ton capacity

Three crawler-mounted excavator-cranes, said to be capable of handling 70 per cent of job requirements, are announced by the Harnischfeger Corp. The three machines make up the new 500 Series—the P&H Models 525, 535, and 550. Basic excavator rating is 1¼ cubic yards. Lifting capacities range from 25 to 50 tons.

The Model 525 works as a shovel or backhoe and, with boom, as a crane, dragline, or clamshell. Booms as long as 90 feet, topped by 30 feet of jib, can be handled.

The Model 535 operates as a backhoe, or with crane-dragline-clam-

2 General
PORTABLE DRILLS
Built for
Faster...Easier Digging!



GENERAL EQUIPMENT CO.
For more facts, circle No. 344
CONTRACTORS AND ENGINEERS



The P&H Model 535 crawler-mounted excavator-crane, rated at 35 tons with a 40-foot T-1 steel boom, also operates as a backhoe, clamshell, or dragline as shown here.

shell attachments. Rated at 35 tons with a 40-foot T-1 steel boom, it handles main boom-jib combinations up to 140 feet long. Mounted on long crawlers, the 535 is reported to have excellent flotation in soft footing.

The 50-ton-capacity Model 550, with maximum 150-foot main boom and 50-foot jib, can deliver materials as high as 20 stories. Wide, long crawlers are standard equipment, as is the T-1 boom, giving stability for work as a powerful erection crane, 80-foot clamshell, 70-foot dragline, or backhoe with a reach of 42 feet 9 inches.

The series is designed for convenient, low-cost maintenance. Cost-cutting features include smooth-rolling tractor-type crawlers; rigid all-welded construction; and exclusive live roller circle mounting.

For further information write to the Harnischfeger Corp., Construction and Mining Division, Dept. C&E, 4445 W. National Ave., Milwaukee 46, Wis., or use the Request Card at page 18. Circle No. 45.

Redesign ups capacity of hydraulic scraper

Allis-Chalmers has redesigned and restyled the TS-160 scraper—smallest in the company's all-hydraulic line—to increase the unit's capacity to 8½ truck and 11 cubic yards heaped, and the payload to 13 tons.

The scraper is powered by an A-C 135-hp supercharged diesel engine and maintains an 18.2 horsepower-to-struck-yardage ratio.

The new rig also features all-hydraulic operation, and double-acting steering jacks and multiplier links to give the unit full power steering over the entire steering range. A 90-degree nonstop turn can be made in less than 35 feet, the manufacturer reports.

The scraper is interchangeable with the body of the recently introduced TR-160 rear-dump wagon, which has a 12-ton capacity.

For further information write to the Allis-Chalmers Mfg. Co., Construction Machinery Division, Dept. C&E, Box 512, Milwaukee, Wis., or use the Request Card at page 18. Circle No. 68.



AT THE TOUCH OF A BUTTON

The Electrol GenerAc will supply shop-type electrical power from your truck, car or tractor — anytime, anyplace.

This high-output, 115/230-volt, 60-cycle alternator is available in a size for your every requirement.

Mounting is simple, with kits available for all popular makes of vehicles.

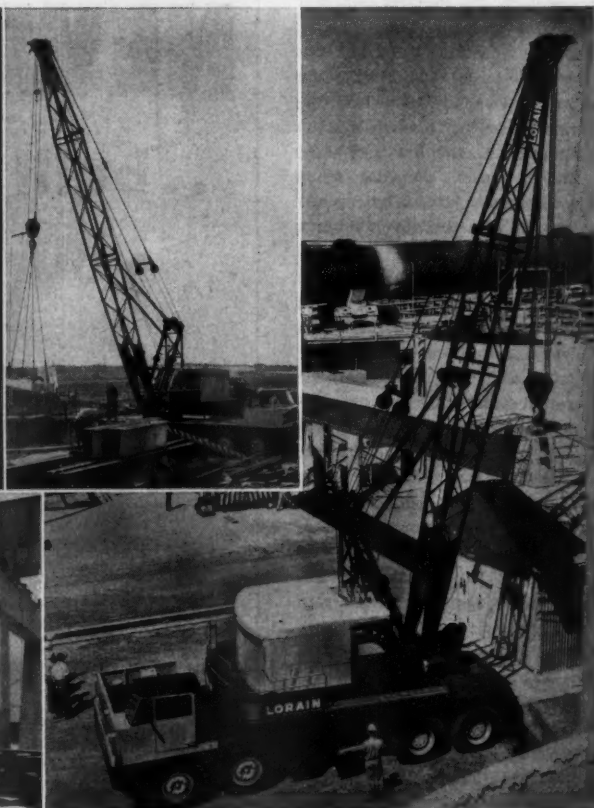
Write to

GenerAc Sales Inc.

124 S. Main Street
Wales, Wisconsin

For more facts, use Request Card at page 18 and circle No. 346

You see this
**75-ton LORAIN
MOTO-CRANE®**
at work across
the country



On a California missile base, an Ohio bridge job, or new plant facilities in Texas, this big, Lorain Moto-Crane is a familiar sight across the country.

OUTRIGGER SET-UP TIME CUT 82%.

Lorain's Power-Set® Outriggers are standard on this model. On a Detroit job it took just 5 minutes for this Lorain to retract, move and reset outriggers. And everything was done by the operator from the carrier cab. An ordinary truck crane, with manual outriggers, on the other end of this big lift, took 45

minutes and three steelworkers to do the same thing.

This is how "Power-Set" Outriggers save downtime, men and money.

Two of the many other exclusive Lorain features on this model are: *Square-Tubular-Chord Boom* that is lighter weight, longer, stronger . . . and "Shear-Ball" turntable connection, with no maintenance or adjustment problems.

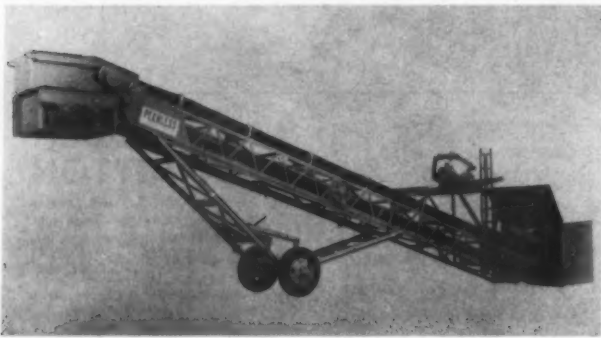
If you need big, rubber tire cranes, ask your nearby Lorain Distributor for all the details. Why not call him now. **THE THEW SHOVEL CO., LORAIN, OHIO**

LORAIN®
DOES MORE
FASTER • FOR LESS

PLANTS in Lorain and Elyria, Ohio.

PRODUCTS—Power shovels, cranes, draglines, clamshells, and hoes on crawlers from ¾- to 2½-yard capacity • Cranes from 7 to 80 tons . . . on crawlers, and as rubber tire Moto-Cranes, and Self-Propelled Cranes • Rubber tire front-end Moto-Loaders in 11,000-lb. to 18,000-lb. lifting capacity.

OUTLETS—Lorain products sold and serviced by 249 distributor outlets throughout the world.



One type of Peerless Conveyor's base-mix unit.

Offer two variations of base-mix unit

Portable stabilized-base-mix units in two fundamental designs have been announced by the Peerless Conveyor & Mfg. Co.

The first is a bin-type unit, consisting of a basic 5-yard surge bin with 23-foot 9-inch belt conveyor discharging into either a single or twin mixing pugmill. The bin is charged by loader, shovel, clam, or dump truck. Aggregate feeds by gravity onto the conveyor belt for discharge into the pugmill.

The second is a portable conveyor unit type, and consists of a Series 3000 extra-duty 40-foot portable belt conveyor unit with combination dozing trap and reciprocating plate feeder, and either single or twin mixing pugmill. This type of unit is usually charged by dozing the aggregate over the dozing trap grizzly.

The manufacturer calls attention to these special features: choice of single or twin-shaft pugmills with capacity up to 500 tph; positive, uniform mixing of aggregate; exact, easy moisture control; complete mobility; conveyor lengths to 60 feet and belt widths up to 42 inches.

For further information write to the Peerless Conveyor & Mfg. Co., Dept. C&E, 3341 Harvester Road, Kansas City 15, Kans., or use the Request Card at page 18. Circle No. 63.

Introduce new line of concrete vibrators

The Prime-Mover Co. announces a new line of flexible-shaft concrete vibrators, both gasoline and electric-powered.

The principal feature of these new units is elimination of eccentric weights in the vibrator heads, enabling the flexible shafts to run at slow speeds while high-frequency vibrations are developed in the heads. The manufacturer claims this feature greatly extends service life and reduces maintenance costs.

As with other Prime-Mover vibrators, sizes of heads and shafts are interchangeable on the same power source by a simple plug-in arrangement direct to the engine or motor shaft.

For further information write to The Prime-Mover Co., Dept. C&E, Highway 22 E, Muscatine, Iowa, or use the Request Card at page 18. Circle No. 83.

J. B. Nottingham & Co.'s mobile welding system requires only one primary plug-in connection, can supply power for up to 30 welders.

Welding system on wheels can power 30 welders

A complete multi-arc welding system packaged in a truck, and said to be capable of supplying constant-potential dc to as many as 30 welders in minutes after it reaches the job site, is offered by J. B. Nottingham &

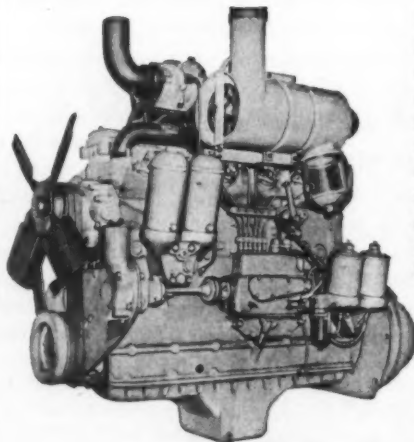


NEW International TD-20

...built to "BEEF UP" your profit edge!

From air intake to new fixed drawbar—from day-to-day dependability through year-in, year-out durability—new strength, new performance protection, new work capacity are built into the new TD-20. Check and compare the advantages of International turbocharged Diesel power, teamed with beefed-to-match new transmission and final drive

components—platformed on a far stronger-than-ever undercarriage—turned into new efficiency by International-built tracks, kept in life-prolonging alignment by exclusive International 3-point suspension. See your International Construction Equipment Distributor for a new TD-20 demonstration.

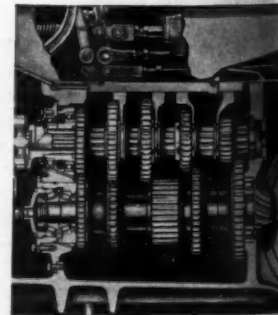
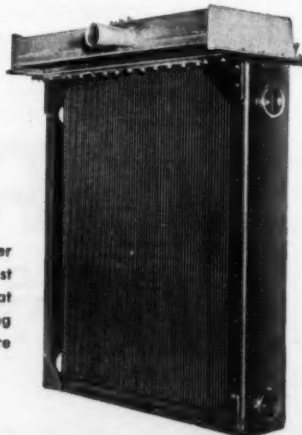


New Turbocharged Diesel Wallop

Modern turbocharging crams air into the new TD-20's smooth running 6-cylinder engine—to produce extra hp efficiently at all altitudes; and to give a 50% torque rise to lug larger overloads. Crankcase ribs are "beefed up;" cooling, air cleaning, and crankshaft capacity all are increased to team with turbocharging. Push-button TD-20 starting is by famous International gasoline-conversion system!

Larger radiator plus jet head increases cooling capacity

Coolant, under pressure from the new greater capacity radiator, is shot through jets against lower surface of TD-20 heads—to aid heat transfer and avoid build-up of heat-trapping deposits. Fan shroud and radiator guard are "heavied" for increased rigidity.



New transmission capacity ...New filtering system added

Heavier shafts, more rugged gears and roller bearings of greater capacity are provided—to carry increased hp and add thousands of hours to working life of power train components. New transmission pump circulates and filters life-guarding lubricant. New "short-travel" levers add operating ease.

Product Parade—YOUR HEADQUARTERS FOR INFORMATION ON NEW EQUIPMENT AND MATERIALS

Co., Inc. The unit is called the Mobil-Arx.

One plug-in primary connection energizes the system. A silicon rectifier power source, rated at 75 volts, 1,500 amp dc continuous and 2,250 amp for 2 minutes, supplies power through 30 400-amp welding control stations for individual arc control.

Twenty-four of the control stations are mounted on the truck, and six are of the portable one-man type. To weld, operators simply run out cables from reels on the truck and plug in to receptacles on the vehicles.

The single truck-packaged system, it is said, can get around to do the work of several less mobile installations. According to the manufacturer, the unit takes less room on busy job sites and keeps equipment and cables out of workers' way. Without tubes to burn out or moving parts to wear out, the system requires little maintenance.

For further information write to J. B. Nottingham & Co., Inc., Dept. C&E, 441 Lexington Ave., New York 17, N. Y., or use the Request Card at page 18. Circle No. 100.

The Schwing climbing crane moves up as the building job progresses and may be controlled from the crane panel or by remote control.



Offer climbing crane for building projects

Vibro-Plus Products, Inc., has announced the availability in this country of the Schwing climbing crane, a lifting rig that climbs as the building job progresses.

Installed on the foundation, the crane starts climbing once the third-floor slab has been placed. No changes to the crane are necessary. A climbing winch winds up the climbing rope and, with the system of ropes and pulley blocks attached to it, pulls the crane up to the next floor.

Six models are available with a maximum radius (jib length) of 98 feet. The height of the crane jib above working level is normally 28 feet, but it may be increased by an additional 10-foot mast section. At 98 feet, the crane lifts 3,100 pounds; at 45 feet or less, 6,200 pounds. Standard hoisting height is 330 feet.

Where no floor slabs are available to support the crane, an outside mast is utilized. This mast is extended in pace with the progress of the building.

Schwing climbing cranes may be operated by means of a portable remote-control box or a control panel, thus allowing the operator to choose his position for the clearest view of both working and ground level.

For further information write to Vibro-Plus Products, Inc., Dept. C&E, Stanhope, N. J., or use the Request Card at page 18. Circle No. 39.

Power trowel offers special blade control

A new 44-inch power trowel with "counterbalanced" blade control is offered by the Kelley Machine Division of the Wiesner-Rapp Co.

According to the company, the four blades are easily pitch-controlled while they are turning by moving a fingertip lever on the handle. The combination of four blades and a new flat-locked floating position is said to provide flat, level concrete floors.

The new trowel features a compact silhouette with a low center of gravity for easy operation without gyrating.

For further information write to the Wiesner-Rapp Co., Kelley Machine Division, Dept. C&E, 285 Chicago St., Buffalo, N. Y., or use the Request Card at page 18. Circle No. 59.

New 140-hp International TD-20 crawler tractor. Develops 113 drawbar hp. Powered by 6-cylinder DT-691 Turbocharged Diesel engine. New capacity 6-speed, full-reverse transmission is controlled by new short-travel gear-shift and Shuttle-Bar levers.



New 99.8% efficient Dry-Type air cleaner

For positive "breathing" safety, the full air volume taken in by turbocharging is "dry-cleaned" of 99.8% of its dirt—by the TD-20 Diesel's new dry-type air cleaner. Handy, under-hood horizontal mounting—and transparent, quick-dump collector—greatly simplify servicing. Dash indicator shows "red" when cleaner element needs washing.

New final drive ...new rigidity

New TD-20 final drives have been strengthened to deliver full torque turbocharged power to the tracks. New sprocket drive doweling increases housing rigidity—helps maintain precision component alignment. Other major steps ahead in TD-20 design include: new torque-taking, life-adding bimetallic steering clutch discs; new pivot shaft inner spacer; new hardness of sprocket drive pinion shaft.

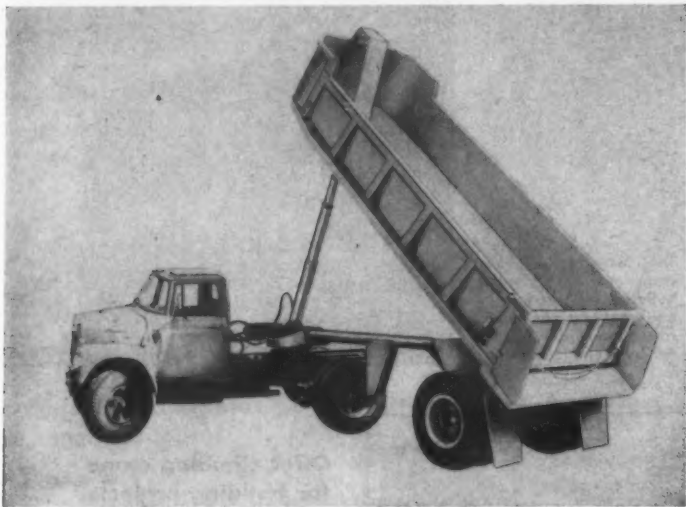
Undercarriage and Protection

Drum-type front idlers add strength... International also adds track chain guides to sides of the TD-20's precision-welded double-beam track frames! New track roller are of cast steel. New heavier strutless links are self-cleaning and power-saving. New hydraulic track adjuster, with built-in relief is "standard" on the new TD-20. Self-floating seals of increased efficiency Dura-Roller life!



**International
Construction
Equipment**

International Harvester Co.,
180 North Michigan Ave., Chicago 1, Illinois
A COMPLETE POWER PACKAGE



Adulterate! Never!

*Adulterate:
To make impure
by admixture of other
or baser ingredients;
corrupt.*

Our Sta 'N Play gal and her roommates don't believe in it.

Sta-Crete ships an unadulterated Epoxy formulation to meet your job requirements—from a playground for Sherman tanks to a playground for Playboys.

Of course, we're partial to Architects, Engineers and Contractors who are all part-time Playboys.



Let's start dating now—
My Sta 'N Play Datebook
is reserved for you.

STA-CRETE Inc.,
115 New Montgomery,
San Francisco 5, California

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Address _____
City _____
State _____
Position _____
Company _____
Phone _____

Dealer Inquiries Invited.

For more facts, use coupon or circle No. 349

Omaha Standard's new 10-to-12-yard end-dump trailer reportedly offers unusual stability because of a special spring arrangement.

Stability a feature of this new end-dump

Omaha Standard, Inc., has announced production of a new 10-to-12-yard end-dump trailer for on or off-highway service.

According to the manufacturer, an exclusive torque-arm cantilever spring causes both suspension springs to work in unison so that the trailer will not twist with weight shifts. The stability of the undercarriage permits use of an oscillating upper fifth-wheel plate, so that the action from tractor to trailer resembles a universal joint. This is said to be especially advantageous when dumping on uneven terrain.

Exceptional ruggedness with the least possible weight is provided by a formed sheet frame and interlaced subfloor construction.

A 50-degree dumping angle is provided by a 20-ton 4-stage cylinder with a 140-inch stroke, allowing the

hoist to work from the extreme front of the trailer—the point of best leverage. A positive cam-type tail-gate latch prevents accidental tripping.

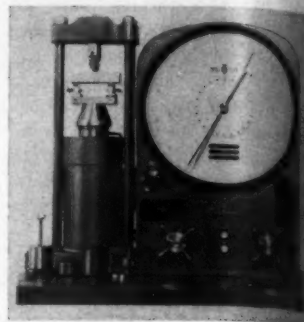
For further information write to Omaha Standard, Inc., Dept. C&E, 2401 W. Broadway, Council Bluffs, Iowa, or use the Request Card at page 18. Circle No. 75.

Bench-model tester for concrete samples

Compression and flexure testing of concrete blocks, beams, and other samples, with speed and precision previously available only with much larger testers, is now said to be provided by the new Tinius Olsen 24,000-pound-capacity Super L testing machine.

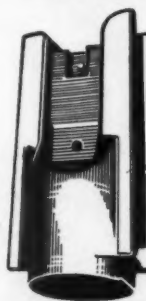
By flipping a switch, the operator can instantly obtain any one of three load ranges—24,000, 12,000, or 600 pounds. Range can be changed at

any time during the test. In addition, by means of an optional pacing unit, uniform loading rates can be maintained.



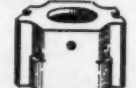
For further information write to the Tinius Olsen Testing Machine Co., Dept. C&E, 2130 Easton Road, Willow Grove, Pa., or use the Request Card that is bound in at page 18. Circle No. 87.

DEPENDABLE SEMI-STEEL PILE HAMMERS



PILE DRIVER HAMMERS

Well designed of tough close-grained semi-steel to give maximum impact for easy reworking. Can be adapted to fit present leads. Fast service in sizes 2000 lbs. to 4000 lbs. in 250 lb. increments.



FOLLOW BLOCKS

Sturdy semi-steel. Quick delivery on all sizes for hammers weighing 2000 lbs. to 4000 lbs.

SWINGING LEADS One Section All-Steel
Lengths 20' 25' 30' 35' 40'
Maintain your pile drivers at top efficiency with this low cost replacement equipment.

Sioux City Foundry & Boiler Co.

East 8th & Division SIOUX CITY 2, IOWA Phone 5-7967

For more facts, use Request Card at page 18 and circle No. 351

ROWCO

BRUSHKING

WORLD'S BEST SELLING BRUSHCUTTER



**ECONOMICAL
BRUSH CLEARANCE STARTS
WITH NEW MODEL 660**

New Brushking Model 660—now 50% more powerful with 3 HP throughout—cuts clearance and maintenance costs as it cuts brush, saplings, trees up to 9". Does the work of 6 men. Anyone can operate... easily, safely. Guaranteed shatter-

proof 10" blade. Available with trimmer-cutter attachment to clear heavy grass and weeds. For name of your nearest distributor, write:

ROWCO MFG. CO., INC. DEPT. CE 3
48 EMERALD ST., KEENE, N.H.



For more facts, use Request Card at page 18 and circle No. 350

CONTRACTORS AND ENGINEERS

Gasoline hammer drills rock, concrete, masonry

A new portable gasoline rotary hammer, using shock waves for drilling rock, reinforced concrete, or masonry, has been added to the line of portable electric and air rotary models manufactured by Demo Tool Corp.

Powered by a heavy-duty McCulloch gasoline engine, the new model develops 40,500 shock waves and

8,250 impacts per minute to cut clean, true holes, according to the manufacturer. The hammer drills ½ to 8-inch holes to considerable depth.

For further information write to the Demo Tool Corp., Dept. C&E, 1001 Colorado Ave., Santa Monica, Calif., or use the Request Card at page 18. Circle No. 72.



Demo Tool Corp. has introduced this portable gasoline-operated rotary hammer for a variety of field operations.

Single-pass machine for concrete paving

The addition of a new precision spreader-finisher-float machine to its line of road-building equipment has been announced by the construction-machinery section of Chain Belt Co.

The new machine reportedly is capable of paving a road in one pass without any need for backup. It requires only one operator and one power plant.

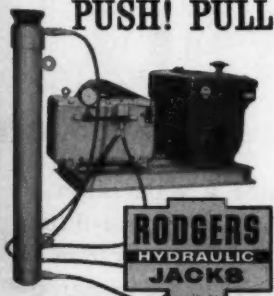
Combined spreading, finishing, and float operations of the new Rex unit provide high-quality slab density and over-all accuracy to meet exacting specifications, according to the manufacturer. It is designed to hold exceptionally close tolerances.

A special feature of the Rex machine is its portability. It is easily disassembled into two basic units for shipping or transferring from one job to another.

A 79-hp gasoline engine supplies hydraulic power for all functions—lifting and lowering the spreader screw (and simultaneous steel strike-off), and controlling the steering brakes and screw reversal.

For further information write to the Chain Belt Co., Dept. C&E, 4701 W. Greenfield Ave., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 102.

LIFT! PRESS! PUSH! PULL!



You'll find RODGERS Hydraulic Jacks on nearly every construction project because of their easy adaptability to any heavy lifting, pulling, or pushing job. Use RODGERS jacking cylinders singly or in groups. You'll get steady, precisely-controlled power to jack steel casing, corrugated pipe, or compressed concrete tile. And you can use them to raise bridges, lift buildings, prestress concrete. Available for immediate delivery, with cylinder capacities of 50 to 600 tons, hand operated or power driven. Get full details. J-100D

RODGERS HYDRAULIC, INC.
Pioneer in high-pressure Hydraulics, since 1932
7401 Walker St. • Minneapolis 26, Minnesota

For more facts, circle No. 352

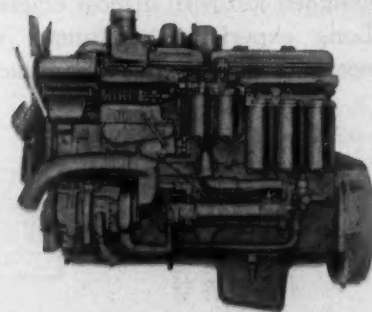
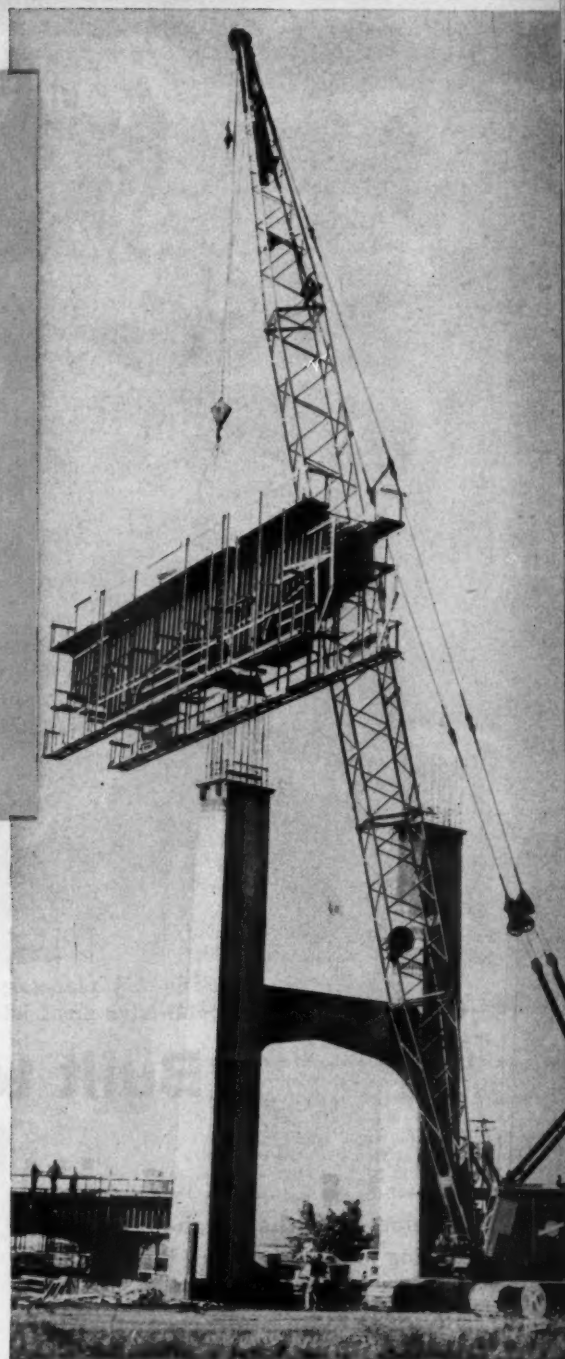
Smooth power aids placement of 32-ton forms on new Duluth-Superior Bridge

The 1.5-mile Interstate Bridge connecting Duluth, Minn. with Superior, Wis. is being erected by the highway departments of the two states. Al Johnson Construction Co., Minneapolis, speeds placement of concrete forms with an International-powered Manitowoc 4000 crane. Heaviest lift was the 32-ton cap form, placed in one hour and 20 minutes, with lift made at a radius of 55 feet. The UD-817 diesel engine provides job-matched power for the big crane, assuring steady operation with maximum economy.

Whether you need power for a 150-ton crane or a ½-yard backhoe, International's wide engine range gives you a power choice to meet job requirements. At the same time, you're sure of many years of trouble-free performance on the job. So, back up your bids with dependable International power—35 engines from 16.8 to 385 max. hp. See your nearby International Engine Distributor or Dealer for complete information.

INTERNATIONAL[®]
HH ENGINES

International Harvester Co.,
180 North Michigan Ave., Chicago 1, Ill.
A COMPLETE POWER PACKAGE



For more facts, use Request Card at page 18 and circle No. 353



AUTOCAR planetary gear-drive AP-15's in foreground and AP-25's in background have great job stamina. Payload ratings 15 tons and 25 tons, respectively.

Built to haul at sure profit ...that's Autocar

Nothing does the rough-and-ready hauling job like Autocar, because no one else builds like Autocar.

Each Autocar is fully custom-engineered and precision built to do its assigned job with utmost efficiency. Long experience, advanced engineering and flexible manufacture

produce just the truck that will earn most for you.

And every Autocar is built to the highest quality standards—beginning with extra-strength frames—including high capacity power trains for maximum top speeds consistent with the job to be done.

Autocar builds a wide range of planetary gear-drive, rear-dump trucks with payload ratings from 12 to 40 tons. They're ahead in maneuverability, strength, safety, comfort, long life—and ability to maintain scheduled trip cycles. Take Autocar, nothing less.



Division of
The White Motor Company
Exton, Pa.

For more facts, use Request Card at page 18 and circle No. 354

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Announce improved line of aggregate conveyors

A new line of Cedarapids Strigid lattice-frame conveyors is offered by the Iowa Mfg. Co. to meet the needs of aggregate producers with portable, stationary, or semipermanent installations.

The new conveyors reportedly feature increased strength, rigidity, and accurate alignment, as well as maximum flexibility and interchangeability, with minimum assembly time required for field erection. The deep truss design, with heavy side bracing, is said to increase conveyor strength without additional weight and to provide high resistance to external stress. Troughing rolls are clamp-mounted to speed assembly and facilitate belt training.

These new lattice-frame conveyors are available in 18, 24, 30, and 36-inch widths, and can be furnished in 2-foot increments at any length desired. The head and tail sections are 8 feet long, and intermediate sections come in 8, 10, and 12-foot lengths. Lagged head pulleys, belt wipers, and self-cleaning tail pulleys are standard equipment on all models.

For further information write to the Iowa Mfg. Co., Dept. C&E, 916 16th St. N. E., Cedar Rapids, Iowa, or use the Request Card at page 18. Circle No. 57.

Offer new abrasive cutting machine

A new abrasive cutoff, called the Speed-Cut No. 11, has been introduced by the Abrasive Machine Division of Beaver Pipe Tools, Inc.



The new machine is said to cut up to 3-inch shapes and 1½-inch solids in seconds. It uses a wheel 11 inches in diameter with a 1-inch bore, and is equipped with drive pins.

A screw-type positive clamping vise holds work securely during cutting. The No. 11 Speed-Cut weighs only 136 pounds and stands 21½ inches tall. It can be mounted on a stand or a workbench.

For further information write to Beaver Pipe Tools, Inc., Abrasive Machine Division, Dept. C&E, 310 Dana Ave. N.E., Warren, Ohio, or use the card at page 18. Circle No. 71.



The new Cedarapids line of lattice-frame conveyors is said to incorporate increased strength, rigidity, and accurate alignment.



How many "machines" is a MODERN LOADER?

JOB-PROVE the 4-in-1 and see...

Here's what the 5 Four-in-One's, shown, are doing: (1) (Left foreground) The 3-cu. yd. TD-20 rig is 'dozing'; (2) (Right foreground) The ¾-cu. yd. T-340 outfit as "carry-type scraper;" (3) (Right center) The 1½-yd. TD-6 4-in-1 "semi-skids" load on its skid shoes; (4) (Center): This 2¼-cu. yd. TD-15 "biting bucket" clam-handles a stump; (5) (Rear) TD-9 rig is back-dragging gravel!

It's a whole equipment spread of job-getting actions, if it's "the bucket with the bite"—an exclusive clam-action International Drott 4-in-1.

"Dragonized" to dramatize "the bucket with the bite," the five 4-in-1 sizes above demonstrate *plus* actions you get with the exclusive clamshell.

Full-capacity, full-range, depth-controlled bulldozer performance. "Carry-type scraper" action to grade, strip, or spread with inch-close accuracy. Skid-Shovel action to "semi-skid" full buckets of material. Controlled back-dragging clam-action, to grade, pick up, or pull down materials. "Clamming-on" action to grab and load heavy unwieldy "impossibles."

Note also the 4-in-1 gives you the top excavator-loader performance on the market! That includes certified break-out forces ranging from 11,200 lbs. with the T-340, to 43,150 lbs. with the TD-20. And only the 4-in-1 gives you clam-type bottom dumping—that ends sticky materials loading problems, for good!

See for yourself how many "machines" the only modern loader is! Move the 4-in-1 machine-action selector lever. Prove you get a whole spread of money-making actions, that obsolete "single-action" loaders, and double for a yard-full of limited-duty rigs! See your International Drott Distributor for a 4-in-1 demonstration.

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin



INTERNATIONAL
DROTT

For more facts, use Request Card at page 18 and circle No. 355



A new concept in portable air compressors is represented by Gardner-Denver's Rota-Screw, a portable screw-type compressor. Air is drawn into the space between lobes of the two helical rotors shown in the inset. The revolving rotors force the air into succeeding smaller spaces, compressing the air in a single stage.

Screw-type unit new development in air compressors

A new concept in portable air compressors has been introduced by Gardner-Denver Co. with announcement of a screw-type compressor called the Rota-Screw.

Air entering the intake port is drawn into the space between lobes of two helical rotors. The revolving rotors force the air into succeeding smaller interlobal spaces, compressing the air in a single stage until full compression is reached. As air is expelled, the next groove comes into line with the outlet port to assure smooth free-flowing air without pulsation.

Designed to operate at extremes of temperature, the single-stage Rota-Screw has no metal contact in the compression chamber and, therefore, has no wearing parts. The two rotors are driven by timing gears and are oil-flooded for sealing and heat removal in compression. There are no blades, no vanes, no valves, no pistons or other reciprocating parts to replace or inspect.

Three models are initially available. The 900-cfm and 600-cfm units are powered by newly designed Caterpillar 6-cylinder diesel engines, and the 125-cfm size is powered by a Continental 6-cylinder gasoline engine. Operating pressure of all models is 100 psi at 1,800 rpm.

A Fail-Safe electrical system stops the compressor should any malfunction occur. Simple off-on switches give instant compressed air. Glow plugs heat the air and fuel for certain starting in temperatures as low as 40 degrees below zero. No time-consuming warmup is needed. Automatic "blow-down" of air receiver at shut-down time saves time between starts.

Remarkable advances in portability are said to be a notable achievement in the Rota-Screw. Fast job setup is assured because the compressor operates off level, at an angle, uphill, or down. Extra-heavy running gear and automotive-type steering permit towing at reasonable speeds.

Heavy-duty truck tires allow rough-terrain operation. Operating weight of the three models ranges from 18,100 pounds for the 900-cfm model to 3,150 pounds for the 125-cfm unit.

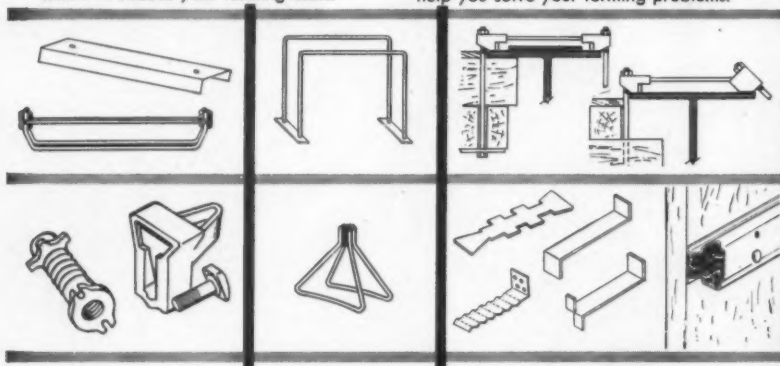
For further information write to the Gardner-Denver Co., Dept. C&R, S. Front St., Quincy, Ill., or use the Request Card at page 18. Circle No. 129.

PUT SAFETY, SPEED, ECONOMY INTO CONCRETE FORMING

.....use SURE-GRIP ACCESSORIES

From one source . . . every accessory you need for accurate, safe and dependable concrete forming. They're made to save time . . . reduce your forming costs.

Your requirements will be filled expediently by a Dayton Sure-Grip distributor near you. As one of hundreds of Sure-Grip distributors, he's experienced, reliable—always ready to help you solve your forming problems.



DAYTON SURE-GRIP HAS A COMPLETE LINE OF ACCESSORIES FOR EVERY CONCRETE FORMING REQUIREMENT

Our detailing department will gladly help plan your forming requirements and layouts.

Years of experience is your assurance of competent, cost saving recommendation.

Write for your free copy of our new catalog



THE DAYTON SURE-GRIP & SHORE COMPANY

111 KERCHER ST., MIAMISBURG, OHIO

For more facts, use Request Card at page 18 and circle No. 356

ON-TIME
maintenance cuts
down-time **DOWN**

Hobbs
**INDUSTRIAL
HOUR METERS**

For use with diesel, gasoline
and electric powered equipment

PLANNED MAINTENANCE based on actual hours of use is the answer to more GO-time and less DOWN-time on your equipment!

TRUE RUNNING TIME gives you a realistic basis for renting and leasing, service contracts, buying and selling.

HOBBS electrical timing instruments are the basic source for the facts you need—revolution counters cannot do the job. Distributors in principal cities . . . WRITE FOR CATALOG 600.

John W. Hobbs Corporation
A DIVISION OF STEWART-WARNER CORPORATION
3067 YALE BLVD. SPRINGFIELD, ILLINOIS



For more facts, use Request Card at page 18 and circle No. 436



High-Speed, Heavy-Duty Hydraulic Trencher for GENERAL CONSTRUCTION



Trench up to 16" wide, depths to 6' . . . dig in any kind of soil. Speedy 30 HP K-1 Ditch Witch trenches for service lines, footings, etc., in money-saving time. Compact, powerful, it offers 4-wheel hydraulic drive, 4-speed transmission, hydraulically-operated boom and backfill blade.

30 HP Model K-1 shown here

OTHER SIZE DITCH WITCH, 7 TO 12 HP, DIG UP TO 12" WIDE & UP TO 5' DEEP

Manufactured by the **CHARLES** Machine Works, Inc.
636 B STREET • PERRY, OKLAHOMA • CALL COLLECT FE 6-4404

For more facts, use Request Card at page 18 and circle No. 357

Product Literature

To obtain free copies of any of the literature described in the following section, circle the designated number on the Request Card at page 18.

Tractor shovel—an illustrated catalog on the Hough Payloader Model H-120 tractor shovel. Features include extra dumping clearance, complete power-shift transmission, power steering, 40-degree bucket breakout at ground level, and 300-hp turbocharged diesel engine. Specifications; photos. Form No. 416.

Write to The Frank G. Hough Co., Dept. C&E, 822 Seventh St., Libertyville, Ill., or use the Request Card at page 18. Circle No. 128.

Dragline rake—illustrated brochure describing the new Insley Basket Rake, designed to replace a dragline bucket for removal of vegetation and surface litter from ditches, ponds, and river beds. Form No. BR-1000-A.

Write to the Insley Mfg. Corp., Dept. C&E, P. O. Box 167, Indianapolis, Ind., or use the Request Card at page 18. Circle No. 116.

Tractor lamps—literature on Hobbs' new shock-mounted tractor lamps with vibration isolation. The various types are described and illustrated, and specifications are given.

Write to the John W. Hobbs Corp., Dept. C&E, Box 358, Springfield, Ill., or use the Request Card at page 18. Circle No. 123.

Motorized wheel—a bulletin describing the GE motorized wheel drive developed for off-highway equipment. Contains photographs of an earth-hauling vehicle using the equipment, and offers a haulage study for potential users. Supersedes a previous bulletin on the motorized wheel. Bulletin GED-4261.

Write to the General Electric Co., Dept. C&E, 1 River Road, Schenectady 5, N. Y., or use the Request Card at page 18. Circle No. 25.

Diesel engines—bulletin describing Yanmar Series A-L diesel engines. Specifications, dimensional information, and data about standard and optional equipment.

Write to the Continental Machinery Corp., Dept. C&E, P. O. Box 5309, Long Beach 5, Calif., or use the Request Card at page 18. Circle No. 118.

Fork trucks—a bulletin on the Clark Ranger 600 and 700 general-purpose fork trucks. Includes photographs, complete specifications, and general dimensions. Bulletin SS-2045.

Write to the Clark Equipment Co., Industrial Truck Division, Dept. C&E, P. O. Box 31, Battle Creek, Mich., or use the Request Card at page 18. Circle No. 35.

Slackline cableway—a catalog describing deep-digging slackline cableways for use in recovering sand and gravel deposits and excavating and hauling bulk materials. Includes table showing capacities of each size machine at varying haul distances. Specifications, photographs. Catalog C.

Write to Sauerman Bros., Inc., Dept. C&E, 624 S. 28th Ave., Bellwood, Ill., or use the Request Card at page 18. Circle No. 53.

Wire rope—a bulletin on Macwhyte 7-Flex all-purpose wire rope. Describes and recommends specific uses. Bulletin No. 5702-R.

Write to the Macwhyte Wire Rope Co., Dept. C&E, 2906 14th Ave., Kenosha, Wis., or use the Request Card at page 18. Circle No. 30.

Dragline buckets—a folder illustrating the design features of Page dragline buckets in 4 to 7-cubic-yard capacities. Descriptive text and specifications table. Bulletin No. DB161.

Write to the Page Engineering Co., Dept. C&E, Clearing Post Office, Chicago 38, Ill., or use the Request Card that is bound in at page 18 of this issue. Circle No. 114.

Grid-system concreting—an illustrated brochure on the Grid Flat Slab Corp.'s grid system of reinforced-concrete construction using steel grid domes in 2-foot modules. Includes comprehensive typical safe load tables and typical layouts of ceilings and floors utilizing the grid system.

Write to the Grid Flat Slab Corp., Dept. C&E, 761 Dudley St., Boston 25, Mass., or use the Request Card at page 18. Circle No. 27.

Form board—a bulletin describing features of Fiberglas insulating form board for poured-in-place, lightweight-concrete roof decks. Profusely illustrated, with photos showing step-by-step use. Specifications, design guide tables. Publication No. 1-GR-471-D.

Write to the Owens-Corning Fiberglas Corp., Dept. C&E, National Bank Bldg., Toledo 1, Ohio, or use the Request Card that is bound in at page 18. Circle No. 115.

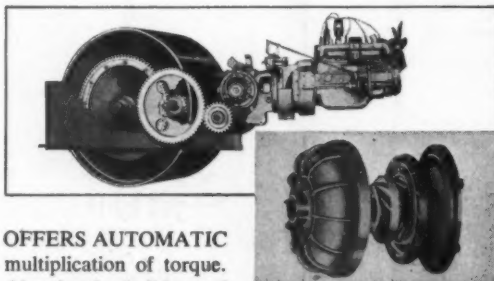
Concrete equipment—a 28-page catalog on the Stow line of concrete equipment and tampers. Covers gasoline-operated and electric concrete vibrators, portable concrete grinders, rotary troweling machines, others. Profusely illustrated; full specifications. Catalog No. 610.

Write to the Stow Mfg. Co., Dept. C&E, 40 Shear St., Binghamton, N. Y., or use the Request Card that is bound in at page 18 of this issue. Circle No. 31.

You'll profit most when you standardize on GALION ROLLERS AND GRADERS. They're equipped for high-output performance

YOU'LL FIND USERS very enthusiastic about Galion "Miles Ahead" performance on any grading and compacting job. Let's look at two Galion features that assure exceptionally good results.

THERE'S ROLL-O-MATIC DRIVE . . . standard on Galion rollers. A highly efficient combination of torque converter, tail-shaft governor and two-speed transmission that gives you important savings in time and dollars.



OFFERS AUTOMATIC multiplication of torque.

Absorbs the build-up of roller inertia. Assures quick, smooth forward-and-reverse action. Saves time.

AUTOMATIC POWER application is another Roll-O-Matic advantage. Permits an infinite number of drive ratios—from top speed to creep-along travel—without overloading or stalling engine. Roll-O-Matic Drive cushions shock loads—prevents wear—saves maintenance.

GRADE-O-MATIC DRIVE, the Roll-O-Matic equivalent for Galion motor graders, is the ultimate in fast, smooth, low-cost grader operation.

EFFECTIVE WORKING SPEED is regulated automatically. Operators benefit by smooth shockless power



transmission without lugging or stalling. They're free to concentrate on more efficient blade work and get more work done.

For information on Grade-O-Matic and Roll-O-Matic equipment contact your Galion distributor or write for latest catalog data. The Galion Iron Works & Mfg. Company, Galion, Ohio, U.S.A.

THE GALION IRON WORKS & MFG. COMPANY, GALION, OHIO, U.S.A.



General and Export Offices, Galion, Ohio, U.S.A.—Cable Address, GALIONIRON, Galion, Ohio

For more facts, use Request Card at page 18 and circle No. 361

CONTRACTORS AND ENGINEERS

Rotary pumps—an illustrated bulletin on the Deming line of heavy-duty internal-gear rotary pumps for tank-truck mounting. Covers features of construction, sizes and ratings, motor-hp tables, dimensions, and a complete list of materials used in the construction of these pumps. Bulletin No. 1537-A.

Write to The Deming Co., Dept. C&E, Salem, Ohio, or use the Request Card that is bound in at page 18. Circle No. 36.

Truck crane—a comprehensive 16-page technical portfolio showing features and capabilities of the recently announced P&H Model 255B-TC truck crane. Includes capacity charts, general dimension drawings, a crane range diagram, cutaway photographs, and photos of the 255B-TC at work. Gives both English and metric figures for important weights and dimensions.

Write to the Construction and Mining Division, Harnischfeger Corp., Dept. C&E, 4444 W. National Ave.,

Milwaukee 46, Wis., or use the Request Card at page 18. Circle No. 26.

Crane safety device—brochure describing an electrical shield for insulating crane booms that come into contact with power lines. Describes use of this safety device and contains comments on its effectiveness.

Write to the Saf-T-Boom Corp., Dept. C&E, 1613 Main St., Little Rock, Ark., or use the Request Card at page 18. Circle No. 126.

Portable dredges—a bulletin showing by means of photographs, cutaway drawings, charts, and text the advantages of Ellicott Dragon model portable hydraulic pipeline dredges. Portability, design features, and economy are stressed. Bulletin No. 980.

Write to the Ellicott Machine Corp., Dept. A, Dept. C&E, 1611 Bush St., Baltimore, Md., or use the Request Card at page 18. Circle No. 108.

Welding chart—a ready-reference wall chart on All-State's complete line of welding, brazing, and soldering alloys and fluxes. Describes in detail the company's aluminum joining alloy line with recommended preheats, amperage or working temperature, tensile or shear strengths, identification, and packaging comments. Government specifications given in tabular form.

Write to the All-State Welding Alloys Co., Inc., Dept. C&E, 249-55 Ferris Ave., White Plains, N. Y., or use the Request Card at page 18. Circle No. 67.

Industrial water pipe—a 10-page brochure describing Johns-Manville Transite asbestos-cement industrial water-pipe products. Includes factual and reference data; also design data and guide specifications for materials and installations. Brochure TR-254A.

Write to Johns-Manville, Dept. C&E, 22 E. 40th St., New York 16, N. Y., or use the Request Card at page 18. Circle No. 29.

Powered gates—a 20-page brochure entitled "Proven Cost Savings in Handling with Daybrook Power Gates." Details the range of platforms available for the nine individual series of Power Gates. Features include one-man operation, easier loading and unloading, more pickups and deliveries per day. Specifications and photographs. Form No. PG-6005.

Write to the Young Spring & Wire Corp., Equipment Division, Dept. C&E, 500 Lehman Ave., Bowling Green, Ohio, or use the Request Card at page 18. Circle No. 33.

Crawler tractor—an illustrated bulletin on the MoTrac crawler tractor. Lists such features as torque converter, hydro (toe-touch) shuttle, simplified controls, 1,000-hour service rollers, and a choice of gasoline or diesel power. Full specifications included.

Write to Motec Industries, Inc., Dept. C&E, 130 Ninth Ave. S., Hopkins, Minn., or use the Request Card at page 18. Circle No. 19.

Antiskid compound—an illustrated fact sheet discussing Carbo resin-rubber cement RR6 for use in bonding antiskid abrasives to surfaces. Application instructions given for antiskid treatment of asphalt and concrete surfaces. Form No. A1551.

Write to The Carborundum Co., Dept. C&E, P. O. Box 337, Niagara Falls, N. Y., or use the Request Card at page 18. Circle No. 10.

Crawler tracks—a brochure describing Athey Forged-Traks for a variety of construction equipment. Tells how these high-flotation crawler tracks permit easy hauling over various types of difficult terrain. Application photographs, specifications.

Write to the Athey Products Corp., Dept. C&E, 5631 W. 65th St., Chicago 38, Ill., or use the Request Card at page 18. Circle No. 109.

Blasting work sheet—an easy-to-use work sheet that permits accurate compilation of blasting costs. Called the Austin Blast Report, it provides an outline for figuring in number of holes, depth of water, type and cost of explosive, etc. Also includes a reduction formula to convert over-all

(Continued on page 120)



GALION
ROLLERS AND GRADERS

**MILES
AHEAD**

the trend is to LW TANDEMS



You can now profitably pull and operate **TWO** scrapers behind **ONE** prime-mover. Tandem operation... tried many times in earthmoving history, but never successful with hydraulic or mechanical control... is now *practical*. LeTourneau-Westinghouse *electric* control (which sends power directly to where it's needed via simple flexible wire) solves the problem of operating the second scraper efficiently. As a result, with LW 'Pulls*, you can *double your capacity* for only the cost of a second scraper, plus minor installation and hookup... and get up to 58 yards capacity every trip!

Save on operating, maintenance costs, too

One operator handles *both* scrapers. There's only *one* prime-mover to care for (*one* engine, *one* transmission, *one* final-drive). No need for a "super" pusher, either. With LW Tandems, you use the *same-size* pusher you'd use for single-scraper, be-

cause you're only loading one scraper at a time. In fact, you actually load *faster* because there's no time lost for pusher repositioning.

Less haul-road maintenance

No wider, no higher than single scrapers, LW Tandems use any haul road. That means fewer machines on the road, less traffic congestion. Actually, ton-for-ton there's *less* pounding of haul roads with tandems than with "singles" of equal capacity. Haul roads last longer.

Change-over in minutes

Once the basic tandem installation has been made, you can add, or take off, the "extra" scraper *in minutes*. You adjust to changing conditions on-the-job, or job-to-job, at will. So, for a *new* low-net-cost-per-yard, look into LW Tandems today!



LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

For more facts, use Request Card at page 18 and circle No. 362

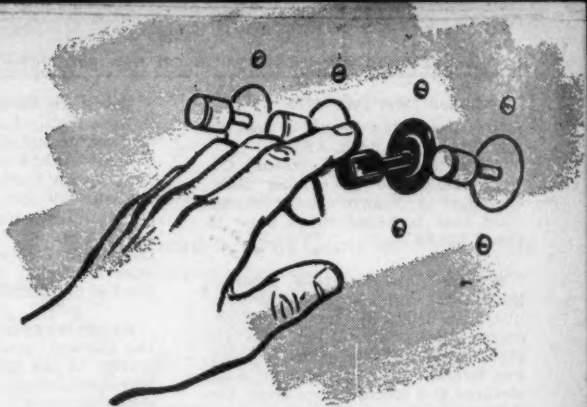
**S... and LW "electrics"
control both scrapers
as easily as ONE**



Haul 2 loads every trip with any 'Pull:

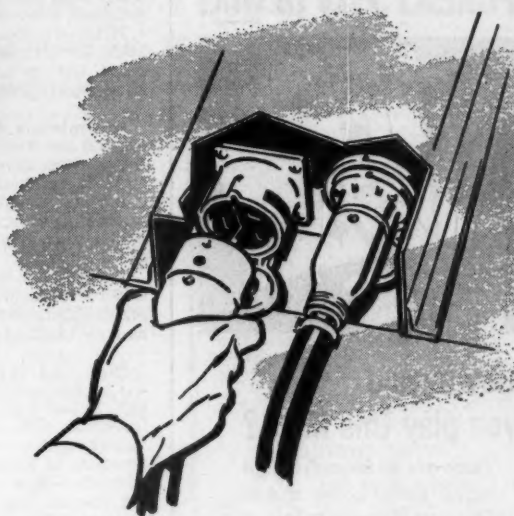
PRIME-MOVERS	SCRAPERS	TOTAL HEAPED YARDS
143-hp D Tournapull®	Model D Tandem D's	9 18
290-hp V-Power C Tournapull	Tandem D's Fullpak® 20 Tandem 20's	18 20 40
276-hp C Speedpull® (4-wheel prime-mover)	Fullpak 20 Tandem 20's	20 40
430-hp V-Power B Tournapull	B Fullpak Tandem 20's Tandem B's	29 40 58

Your LW Distributor can convert your present 'Pulls to tandem operation, or will equip you with new 1961 'Pulls all ready for tandem profits!



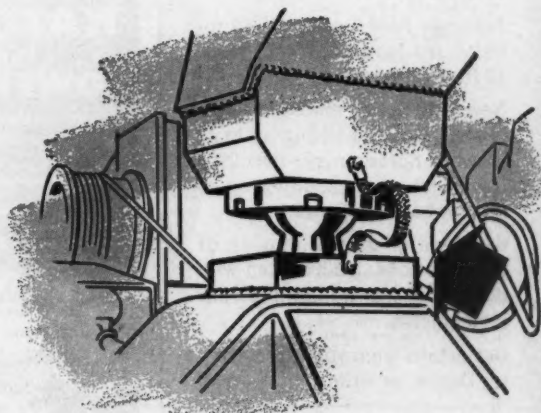
Fingertip control of both units

One row of LW electric switches controls apron, tail-gate, and bowl-hoist of front scraper... a second row controls the second scraper. It's as simple as that! Operator gets immediate, accurate response. Motors reach full speed in $\frac{2}{5}$ of a second! System is completely weatherproof. Costs less to maintain at full operating efficiency than any other control system.



Rear-scraper hook-up is a snap

You connect or disconnect second scraper in a matter of minutes. Convenient, one-hand-size plugs on "electrics" and air lines readily insert into quick-disconnect jacks, located at the hitch. Connections are firm, will not come apart during turns or other maneuvering.



Single-scraper maneuverability

Universal-swivel hitch connects front scraper to rear. Big, rugged plate and hitch are welded to front-scraper's push-block frame. Pivot-point is over rear-axle of front scraper. You perform any maneuver possible with single scrapers... make 180° tandem-turn in area only 20 to 25% wider than with "singles". Back-up, too, with no jack-knifing.

*Trademark TP-2280-DC-2r

You can now profitably pull and operate **TWO** scrapers behind **ONE** prime-mover. Tandem operation... tried many times in earthmoving history, but never successful with hydraulic or mechanical control... is now *practical*. LeTourneau-Westinghouse *electric* control (which sends power directly to where it's needed via simple flexible wire) solves the problem of operating the second scraper efficiently. As a result, with LW 'Pulls*, you can *double your capacity* for only the cost of a second scraper, plus minor installation and hookup... and get up to 58 yards capacity every trip!

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Where quality is a habit

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Product Literature—INFORMATION ON NEW PRODUCTS THAT CAN HELP SAVE MONEY ON YOUR JOBS

(Continued from page 117)

figures into cost per yard or cost per ton of material. Form ABR.

Write to the Austin Powder Co., Dept. C&E, 450 Rockefeller Bldg., Cleveland 13, Ohio, or use the Request Card that is bound in at page 18. Circle No. 55.

Boring equipment—a brochure illustrating and describing the complete line of Ka-Mo earth and rock-boring power-transmission units, auger sections, and accessories. Air, electric, hydraulic, and gasoline units are pictured and specifications given. Detailed drawings.

Write to the Kwik-Mix Co., Ka-Mo Tools Dept., Dept. C&E, 235 W. Grand Ave., Port Washington, Wis., or use the Request Card that is bound in at page 18 of this issue. Circle No. 120.

Dragline buckets—a folder listing the features and benefits of McCaffrey medium and lightweight all-welded dragline buckets. Gives specifications for these buckets which are available in sizes up to 4½ cubic yards. Bulletin No. 859.

Write to M. P. McCaffrey, Inc., Dept. C&E, 2121 E. 25th St., Los Angeles 58, Calif., or use the Request Card at page 18. Circle No. 6.

Bituminous paver—a brochure on the features, specifications, and operation of the Model 75 Trac-Paver. Maneuverability and economy of the rig are stressed.

Write to the Trac-Machinery Corp., Dept. C&E, Nunda, N. Y., or use the Request Card at page 18. Circle No. 119.

Excavators—an illustrated catalog on Inley crawler-mounted 1-cubic-yard WT excavators. Provides general dimensions, specifications, working ranges, and capacities of these units with backhoe, hookwork crane, clamshell, dragline, and shovel attachments. Descriptions and illustrations of optional equipment also included. Catalog No. 200-3A.

Write to the Inley Mfg. Corp., Dept. C&E, P. O. Box 167, Indianapolis 6, Ind., or use the Request Card at page 18. Circle No. 66.

Bituminous distributors—a catalog on the Rosco line of bituminous distributors. Gives detailed specifications of standard equipment and accessories, optional attachments, and alternate equipment available. Illustrated with photos and diagrams. Catalog 611.

Write to the Rosco Mfg. Co., Dept. C&E, 3128 Snelling Ave. S., Minneapolis 6, Minn., or use the Request Card at page 18. Circle No. 38.

Pine and tubing measurement

Pneumatic roller—specification sheet on the Littleford Model 9S-14, 9-wheel pneumatic-tire roller. Illustrates oscillating drive axle, other features. Table on weights and compaction pressure.

Write to Littleford Bros., Inc., Dept. C&E, 453 E. Pearl St., Cincinnati 2, Ohio, or use the Request Card at page 18. Circle No. 105.

Versatile excavator—booklet describing the Yumbo Models Y-35 crawler, S-25 truck-mounted, and H-25 self-propelled all-hydraulic hoe-loader-shovel-crane units. Photographs, diagrams describe construction and operation features. Complete specifications.

Write to the Hydraulic Equipment & Shovel Co., Dept. C&E, Box 36, Pearland, Texas, or use the Request Card that is bound in at page 18. Circle No. 111.

Prestressed strand—booklet describing CF&I prestressed-concrete strand. Technical data, including mechanical properties, load table, and specifications.

Write to the Colorado Fuel & Iron Corp., Dept. C&E, P. O. Box 1920, Denver, Colo., or use the Request Card at page 18. Circle No. 106.

Welding—a 24-page booklet containing photographs, articles on welding in all parts of the country. Contains how-to-do-it hints, application stories. Booklet AWN-165.

Write to the Hobart Bros. Co., Dept. C&E, Hobart Square, Box 8129, Troy, Ohio, or use the Request Card at page 18. Circle No. 112.

Crane-excavators—folder featuring two popular-sized Koehring crawler crane-excavators—the Model 305 ¾-yard and the Model 405 1-

POKER? Play to win!



How would

Announcing

HI-VIBER

Hi-cycle motor-in-head concrete vibrator

Haul 2 loads every trip with any 'Pull:

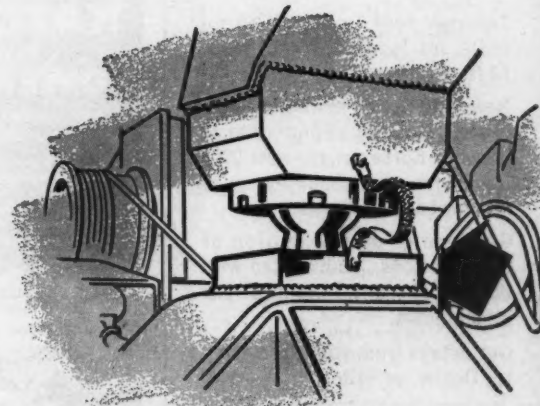
PRIME-MOVERS	SCRAPERS	TOTAL HEAPED YARDS
143-hp D Tournapull®	Model D Tandem D's	9 18
290-hp V-Power C Tournapull	Tandem D's Fullpak® 20 Tandem 20's	18 20 40
276-hp C Speedpull® (4-wheel prime-mover)	Fullpak 20 Tandem 20's	20 40
430-hp V-Power B Tournapull	B Fullpak Tandem 20's Tandem B's	29 40 58

Your LW Distributor can convert your present 'Pulls to tandem operation, or will equip you with new 1961 'Pulls all ready for tandem profits!



Rear-scraper hook-up is a snap

You connect or disconnect second scraper in a matter of minutes. Convenient, one-hand-size plugs on "electrics" and air lines readily insert into quick-disconnect jacks, located at the hitch. Connections are firm, will not come apart during turns or other maneuvering.



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*Trademark TP-2280-DC-2r

Product Literature—CATALOGS AVAILABLE FROM MANUFACTURERS THAT CAN INCREASE PROFIT MARGINS

yard. Describes how these machines perform on pipeline, road, building, and quarry work. Hoe, shovel, clam, dragline, and crane front-ends are illustrated. Bulletin K-793.

Write to the Koehring Division, Koehring Co., Dept. C&E, 3026 W. Concordia Ave., Milwaukee 16, Wis., or use the Request Card at page 18. Circle No. 110.

Steel products—a well illustrated catalog describing about 25 Shlagro structural-steel members and other steel items. Tables, cutaway diagrams. Detailed catalogs on each product are listed.

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Concrete screed—a folder on the uses and advantages of the Yaun screed, with emphasis on bridge and overpass construction. On-the-job photos. Bulletin No. 307.

Write to the Yaun Mfg. Co., Inc., Dept. C&E, 2120 N. Third St., Baton Rouge, La., or use the Request Card at page 18. Circle No. 104.

Batching plants—literature illustrating and describing Miller & Smith manual, semiautomatic, or fully automatic batch plants; also bins, elevators, conveyors, silos, cement screws, etc. Cutaway diagrams.

Write to the Miller & Smith Mfg. Co., Inc., Dept. C&E, 500 Phoenix Ave. N.W., Albuquerque, N. Mex., or use the Request Card at page 18. Circle No. 115.

Clearing rig—literature on the Bestland Model 876 Sky Boy hydraulic rock picker. Pictures illustrate operation of the unit. Features, capacity, etc., described.

Write to the Viel Mfg. Co., Dept. C&E, P. O. Box 632, Billings, Mont.

Tower crane—a bulletin introducing the Mark I-50 tower crane—the first American-built machine of this type. Explains how this new rig is designed to handle building and other construction jobs with a marked reduction in labor and material-handling costs.

Write to the Bucyrus-Erie Co., Dept. C&E, South Milwaukee, Wis., or use the Request Card at page 18. Circle No. 121.

Concrete, masonry blades—a 42-page catalog covering the complete Carborundum line of abrasives and related products for the masonry and concrete trades. Designed for quick reference, the booklet is illustrated with photographs and drawings. Specifications included.

Write to The Carborundum Co., Dept. C&E, P. O. Box 337, Niagara Falls, N. Y., or use the Request Card at page 18. Circle No. 11.

For "Convention Calendar," a list of meetings and conventions for the months of April, May and June, turn to page 77 of this issue.



Prime-Mover Concrete Vibrator

Designed on the proven rolling-weight principle that:

1. Produces high frequency powerful vibrations
2. Permits the shaft to run cool and slow
3. Provides one hand portability
4. Changes from small to large heads quickly
5. Requires fewer parts—less maintenance
6. Gasoline or electric power units

Guaranteed by Prime-Mover Co. — recognized for dependability in concrete handling equipment. Write to us for distributor's name and a demonstration. Prime-Mover Co., Muscatine, Iowa.

PRIME-MOVER

GREENVILLE RIPPER FOR IH TD-15, 20, 25 TURN TRACTOR INTO 4-WAY MACHINE

... rip ... bulldoze ... tow ... pushload without changing tools

RIP AT ANY DEPTH ... Pitch and depth control adjustments permit ripping at any depth. From basic settings, operator can adjust hydraulically as required. Settings can be made in seconds. Hydraulic system holds points at desired depth. Shank design and pitch control keep points at best

LIVE SWIVEL ACTION ... Shanks smoothly swivel 15° in either direction on heavy pins — seek out weak spots in rock. It gives points a live action that shatters rock with a jack-hammer action. Shanks follow tractor like a trailer.

FINGER-TIP HYDRAULIC CONTROL ... Finger-tip control of the "power-matched" hydraulic system exerts



BOOSTER RIPPING ... A push block, straddling the center shank and swing beam can be attached very quickly by pinned connections. This permits use of the combined efforts of two tractors for added ripping

(Continued from page 117)

figures into cost per yard or cost per ton of material. Form ABR.

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POKER? Play to win!



How would you play this hand?

Odds are 50-50 you're high hand before the draw. Open, or if you're to left of opener, raise. Don't stay on less, though. Queens or under most times are drawing against a better hand.

Here's a sure winner from FORD:

Two new Ford Tractors built for half-yard loading, for 10 ft. or 12 ft. digging!

New 4000 Series Industrial Tractor for work demanding up to 42 drawbar horsepower; new 2000 Series for work requiring up to 32 drawbar horsepower.

Gasoline or diesel, choice of transmissions, job-matched with dozens of front, side and rear attachments.

Get details from your Ford Tractor Dealer, or write:

Tractor and Implement Division
Ford Motor Company
Birmingham, Michigan



For more facts, circle No. 363

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Pipe and tubing measurement—a booklet entitled "How to Measure and Relate Pipe, Tubing and Hose Sizes." Supplies standard methods of measurements; discusses standard practices of measuring adapters and complete assemblies. Dash numbering systems used in pipe and tubing measurements are also explained in chart form. Bulletin No. 631.

Write to the Aeroquip Corp., Dept. C&E, 300 S. East Ave., Jackson, Mich., or use the Request Card at page 18. Circle No. 34.

Day and Night...

KATOLIGHT

Portable POWER PLANTS

KEEP CONSTRUCTION MOVING AT TOP SPEED...ECONOMICALLY!

With instant dependable on-the-job electrical power, work speeds up, costs go down.

KATOLIGHT Portable Plants give your crews "plug-in power" anywhere...anyplace for lighting, electrical tools and equipment.

THERE IS A SIZE AND MODEL FOR EVERY PORTABLE, STANDBY, CONTINUOUS USE FROM 350 WATTS TO 125 KW, UP TO 500 KVA ON REQUEST!

KATOLIGHT CORPORATION
Box 891-8
MANKATO, MINNESOTA

For more facts, circle No. 364

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Announcing

HI-VIBER

Hi-cycle motor-in-head concrete vibrator!

Dependable gasoline engine generator plant

100-cycle 230-volt 10,500 rpm motor—right at the working end!

Every feature you've looked for is built into this newest Viber vibrator: brute power, high speed, one-man operation, easy maintenance. Hi-Viber consolidates the lowest slump concrete—with power to spare! It's easy to handle on narrow scaffolds, high forms or at hard-to-reach pour sites—as far as 200 feet from the generator. Simple motor design eliminates downtime and job failure. Just two moving parts—the rotor and the massive eccentric weight—turn on lifetime-lubricated sealed bearings. 1½ or 2¼-inch diameter vibrator heads have interchangeable rubber or steel tips. For complete details, call your Viber distributor or write the Viber Company, 726 South Flower Street, Burbank 24, California.

VIBER LINE: Concrete Vibrators, electric, pneumatic and gasoline engine powered • Hi-cycle, Motor-in-head vibrators • Small diameter internal vibrators (electric or gasoline) • Laboratory electric internal • Mass concrete vibrators (pneumatic) • External vibrators (electric and pneumatic) • Full depth concrete paving vibrators

it pays to standardize on

Viber Vibrators

For more facts, use Request Card at page 18 and circle No. 365

CONTRACTORS AND ENGINEERS

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Steel products—a well illustrated catalog describing about 25 Shlagro structural-steel members and other steel items. Tables, cutaway diagrams. Detailed catalogs on each product are listed.

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Clearing rig—literature on the Bestland Model 876 Sky Boy hydraulic rock picker. Pictures illustrate operation of the unit. Features, capacity, etc., described.

Write to the Viel Mfg. Co., Dept. C&E, P. O. Box 632, Billings, Mont., or use the Request Card at page 18. Circle No. 117.

Welding—a bulletin entitled "Arc Welding Stainless Steel." Gives physical properties, structure, and welding characteristics of the different types of stainless steel. Also included is a chart listing deposit properties and electrode recommendation tables. Bulletin 7300.2.

Write to The Lincoln Electric Co., Dept. C&E, Box 3115, Cleveland 17, Ohio, or use the Request Card at page 18. Circle No. 28.

Submersible pumps—a folder describing the Weda line of submersible sump pumps. Cutaway drawing illustrates construction and operational features. Technical data, application photographs.

Write to Motoramic, Inc., Dept. C&E, 2120 Market St., San Francisco 14, Calif., or use the Request Card at page 18. Circle No. 124.

Compactor—a bulletin on the Thunderbird EP-60 Equa-Pak 60-ton compactor. Features include vertical-action wheels, removable ballast tanks, and tire-removal facility. Specifications. Bulletin EP-1-61.

Write to Thunderbird Engineering, Inc., Dept. C&E, 2811 Dawson Road, Tulsa 9, Okla., or use the Request Card at page 18. Circle No. 32.

Impact breakers—descriptive literature on the Kennedy line of dual-rotor impact breakers, both stationary and portable, for primary and secondary impact crushing. Photographs, diagrams, charts, specifications. Bulletin No. 60-A.

Write to the Kennedy Van Saun Mfg. & Engg. Corp., Dept. C&E, 405 Park Ave., New York 22, N. Y., or use the Request Card at page 18. Circle No. 107.

Mower—a specification sheet on Motec Industries' side-mounted mower. Design features, description of operation, specifications. Illustrated. Bulletin No. 1061.

Write to Motec Industries, Inc., Dept. C&E, 130 Ninth Ave. S., Hopkins, Minn., or use the Request Card at page 18. Circle No. 103.

Tower crane—a bulletin introducing the Mark I-50 tower crane—the first American-built machine of this type. Explains how this new rig is designed to handle building and other construction jobs with a marked reduction in labor and material-handling costs.

Write to the Bucyrus-Erie Co., Dept. C&E, South Milwaukee, Wis., or use the Request Card at page 18. Circle No. 121.

Concrete, masonry blades—a 42-page catalog covering the complete Carborundum line of abrasives and related products for the masonry and concrete trades. Designed for quick reference, the booklet is illustrated with photographs and drawings. Specifications included.

Write to The Carborundum Co., Dept. C&E, P. O. Box 337, Niagara Falls, N. Y., or use the Request Card at page 18. Circle No. 11.

For "Convention Calendar," a list of meetings and conventions for the months of April, May and June, turn to page 77 of this issue.



Prime-Mover Concrete Vibrator

Designed on the proven rolling-weight principle that:

1. Produces high frequency powerful vibrations
2. Permits the shaft to run cool and slow
3. Provides one hand portability
4. Changes from small to large heads quickly
5. Requires fewer parts — less maintenance
6. Gasoline or electric power units

Guaranteed by Prime-Mover Co. — recognized for dependability in concrete handling equipment. Write to us for distributor's name and a demonstration. Prime-Mover Co., Muscatine, Iowa.

PRIME-MOVER

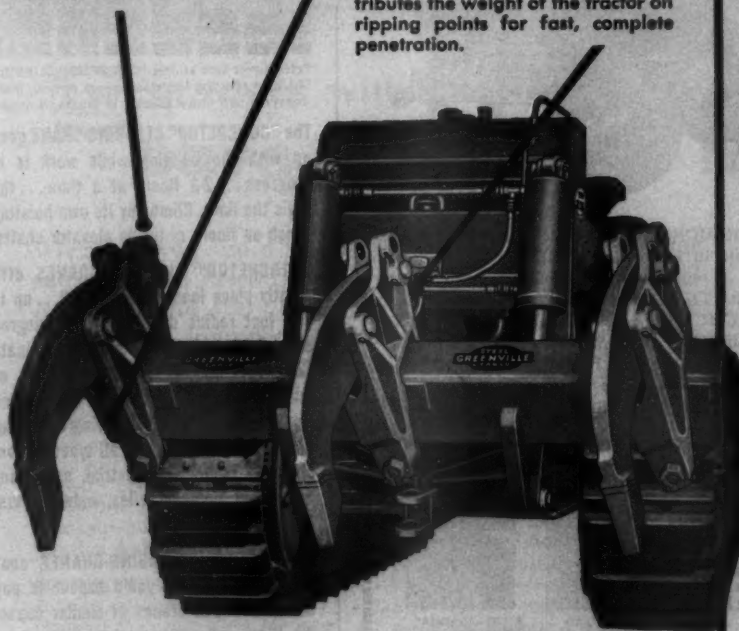
GREENVILLE RIPPER FOR IH TD-15, 20, 25 TURN TRACTOR INTO 4-WAY MACHINE

... rip ... bulldoze ... tow ... pushload without changing tools

RIP AT ANY DEPTH ... Pitch and depth control adjustments permit ripping at any depth. From basic settings, operator can adjust hydraulically as required. Settings can be made in seconds. Hydraulic system holds points at desired depth. Shank design and pitch control keep points at best ripping angle.

LIVE SWIVEL ACTION ... Shanks smoothly swivel 15° in either direction on heavy pins — seek out weak spots in rock. It gives points a live action that shatters rock with a jack-hammer action. Shanks follow tractor like a trailer.

FINGER-TIP HYDRAULIC CONTROL ... Finger-tip control of the "power-matched" hydraulic system exerts Goliath-like power which distributes the weight of the tractor on ripping points for fast, complete penetration.



THE GREENVILLE TRAILING SWING BRACKETS work separately, each pivoting about a heavy pin to seek out weak spots in rock. The ripper weight balances dozer, resulting in greater traction and more usable horsepower.



BOOSTER RIPPING ... A push block, straddling the center shank and swing beam can be attached very quickly by pinned connections. This permits use of the combined efforts of two tractors for added ripping power.



CURVED SHANKS are available in 24" maximum digging depth for TD-20 and 25. These shanks give their best performance in materials that are not blocky or lumpy in formation.



STRAIGHT SHANKS are available in 24", 42" and 48" maximum digging lengths for TD-25 and all will adapt to the standard ripper without special attachments. Greenville's straight shanks give top performance in a wide range of materials. 18" penetration shanks are available for TD-15.



REPLACEABLE POINTS ... For use with curved and straight shanks.

Tractor	Max. Ripping Depth With Shanks	Ground Clearance		Overall Width Tool Beam	Tool Beam Cross Sect.	Pump Data (Rear PTO)	Cyl. Dimensions		Pist. Rod Diam.
		24" Shank	18" Shank				Bore	Stroke	
TD-25	24"	31"	—	108"	11" x 12 1/2"	60 gpm @ 1000 psi	8"	15 1/2"	3"
TD-20	24"	24"	—	102"	10" x 12"	44 gpm @ 1000 psi	6"	15"	2 1/4"
TD-15	18"	—	12"	90"	8" x 8"	37 gpm @ 1000 psi	5"	15"	2"

STEEL GREENVILLE CAR CO.

EARTHMOVING

EQUIPMENT

GREENVILLE
STEEL CAR COMPANY

Greenville, Pennsylvania

For more facts, use Request Card at page 18 and circle No. 366

A 20-foot section of Armco Smooth-Flo pipe is lowered into a trench by a backhoe for a new sanitary-sewer project in Mount Vernon, N.Y. The cost of this job was cut some \$359,000 when a design change permitted use of the Armco pipe, providing a flow comparing favorably with larger vitrified clay pipe.



Predesign Investigation saves money on sewer project

A sanitary-sewer project nearing completion in Mount Vernon, N. Y., demonstrates the value of thorough predesign investigation, especially where extensive sewer drainage is involved.

Replacement of an 80-year-old 4,000-foot trunk, the only remaining brick sewer in the city system, had been recommended by consulting engineers in a report of present and fu-

ture city needs. The report estimated that in 25 years the area serviced by this sewer would grow to 117 acres, with 200 people per acre, and recommended a 30-inch vitrified clay sewer to maintain adequate service.

This recommendation created two problems: First, the cost was high; second, high infiltration of existing sewers was already overloading the county's sewage-disposal plant on the Hudson River at Yonkers. To alleviate this condition, Westchester County engineers proposed specifications permitting use of vitrified clay pipe only if set in a continuous concrete cradle. This factor would have placed the cost of the new trunk at approximately \$600,000.

More economical solution

To find a more economical solution, Mount Vernon's Engineering Department made an intensive investigation of the starting point of the brick section where it was connected to an existing 36-inch sewer. At right angles to this line was a 24-inch sewer leading directly to the Westchester County trunk system. Because the 24-inch line was flowing at very low capacity, it was decided to construct a baffle in the junction manhole to divert sewage from the 36-inch pipe into the 24-inch pipe, thus preventing any sewage from entering the old brick sewer.

However, the baffle was constructed so that, in case of emergency, sewage could overflow into the brick sewer (which was to be left in place) and would connect with the new trunk at a point 1,050 feet below the manhole.

Completion of this preliminary work enabled Mount Vernon engineers to design a sewer that utilized pipe of a much smaller diameter. The northern section consists of 1,000 feet of 12-inch pipe and 1,300 feet of 15-inch pipe, while the southern 1,800 feet, connecting to the 78-inch county trunk, is 21-inch pipe.

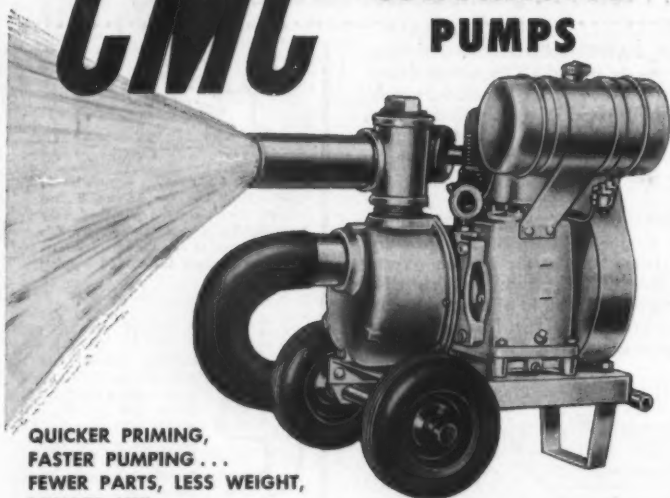
To obtain a tight sewer, an allowable infiltration of 100 gallons per mile of sewer per 24 hours per inch of diameter was specified. This is in contrast to the normal allowance of 150 gallons per mile per 24 hours per inch. Another consideration was that the flow of the pipe would have to compare favorably with that of vitrified clay. To meet both requirements, Armco Smooth-Flo pipe, or equal, was used. Maximum flow capacity of this 16-gage pipe is provided by the centrifugally applied bituminous lining that completely fills and covers the inside corrugations at a minimum of 1/8 inch over the crests of the corrugations. Joints of the 20-foot sections are sealed with neoprene gaskets and clamped tight with bands.

The contract for the job was

revolutionary...all-new design

CMC

CONTRACTOR PUMPS



QUICKER PRIMING,
FASTER PUMPING...
FEWER PARTS, LESS WEIGHT,
LONGER LIFE

YOU COULDN'T ASK FOR MORE IN A PUMP! These all-new design CMC's offer the ultimate in features that will save you more time, more work and money... regardless of the pumping job to be done, or conditions on the job. THERE'S A COMPLETE LINE... WITH A MODEL AND SIZE CMC PUMP TO EXACTLY FIT YOUR NEEDS: CMC Dual Primers in 1 1/2" through 10" sizes; CMC Diaphragm Pumps, Skwee-Gee, Ball Valve and Flap Valve types in 2" through 4" sizes; CMC WONDER-Lite Lightweight Pumps in 1 1/2", 2" and 3" sizes; CMC Pressure-Flo Pumps in 2" through 6" sizes.

SEE WHY THE NEW CMC PUMPS GIVE YOU MORE FOR YOUR MONEY...

WRITE FOR THESE

NEW, FREE CATALOGS!

Seeing is believing... and the new, colorful, fully illustrated CMC Pump Catalogs pictured at right give you complete details on the tremendous new features of all the NEW CMC PUMPS. SIMPLY CHECK THE CATALOGS YOU WANT AND THEY WILL BE SENT YOU BY RETURN MAIL.

NAME

COMPANY

ADDRESS

CITY

STATE

CONSTRUCTION MACHINERY CO., WATERLOO, IOWA

For more facts, use coupon or Request Card at page 18 and circle No. 368



1 1/2", 2", 3" DUAL PRIMERS (Catalog DPS-61)



3"-10" DUAL PRIMERS (Catalog DPL-61)



DIAPHRAGM PUMPS (Catalog DP-1059)

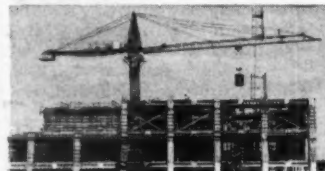


WONDER-Lite PUMPS (Catalog WLP-60)



PRESSURE-FLO PUMPS (Catalog PFP-61)

HOW "CONCRETOR" CLIMBING-CRANES REVERSE RISING CONSTRUCTION COSTS



Peter Kiewit Sons utilizes "CONCRETOR" CLIMBING-CRANE in effecting important savings of time, labor, money on own office building in Omaha, Nebraska.

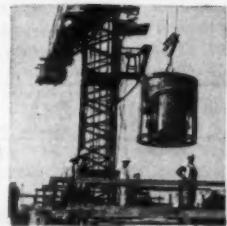
The "CONCRETOR" CLIMBING-CRANE goes up with the building while work is in progress... 2-3 floors at a time... the sky's the limit. Climbs by its own hoisting winch on floors or inside elevator shafts.

"CONCRETOR" CLIMBING-CRANES efficiently place loads "on a dime"... up to 100 foot radius due to the 360 degree swing of its 100 foot jib. They eliminate the need for expensive rehandling of materials over unnecessary ramps and runways, substantially lowering operating costs. Recommended for all types of construction including industrial, apartment and office buildings, silos, water towers, bridges and viaducts.

"CONCRETOR" CLIMBING-CRANES cost about half of what you'd expect to pay for earth-bound cranes of similar capacity. With ordinary use, the cost can be amortized over a period of about 2 years.

CHOICE OF 4 MODELS — RENTAL/ PURCHASE PLANS. Delivered any where in U.S. Factory-trained service engineers available.

For Literature Address Dept. CE-4



Crane is remote-controlled by one man from working deck with 3 1/2 lb. electronic panel.

B. M. HEED, INC.
30-01 37th Avenue, Long Island City 1, N.Y.
B. M. HEED CALIFORNIA, INC.
630 Sixth Street, San Francisco 3, California

For more facts, circle No. 369

CONTRACTORS AND ENGINEERS



Drilling blast holes for the 20-foot deep trench are a pair of Ingersoll-Rand hydraulic-arm drills mounted on the front of a tractor.

awarded to Yonkers Contracting Corp. Total cost of the project was approximately \$241,000 as compared to the original estimate of \$600,000.

Excavation problems

In preparing plans for excavation, engineers assumed that the original trunk line had been installed by the open-trench method and accordingly made test borings at 50-foot intervals just far enough from the existing sewer to be clear of the supposedly open-cut area. When excavation began, it was found that a large part of the original trunk line had been hand-carved out of solid rock in a series of winding, irregular tunnels.

This created a problem with blast-hole drilling. Because crews drilled unwittingly through the roof of the arch, bits were lost and blasting power was sometimes dissipated into the tunnels. In these areas, blasting had to be done in stages, by drilling everything above the tunnel in one lift and the remainder with a second lift. To speed the operation, the contractor used two Ingersoll-Rand hydraulic-arm drills mounted on the front of a tractor. A Northwest backhoe removed shot material from cuts, which averaged 16 to 22 feet deep.

The only other problem encountered was at a 200-foot stretch of excavation in rock that ran parallel to and coincident with two 20-inch high-pressure gas lines. The pipes, 4 feet below the ground, had to be kept in service during excavation. Tight wood sheeting was used to line both sides of the 8-foot-wide trench, and excavation around the pipes was done by hand. No blasting was permitted. Holes were drilled in the rock, which was then split. Removal of rock pieces was accomplished entirely by hand labor.

Installation of the pipe proceeded rapidly. The 20-foot sections were lowered into the trench on a sling suspended from a backhoe bucket. Workmen joined it to the section already installed in less than 15 minutes. The new line rests on a 6-inch bed throughout its entire length.

At no time during excavation was any area without sanitary service. An 8-inch Gorman-Rupp pump powered by a General Motors diesel bypassed sewage from above the open cut through a temporary steel pipe to a sewer nearby. After working hours, the pump was shut down and the sewage was flumed into the new line.

THE END



POWER TO PRODUCE

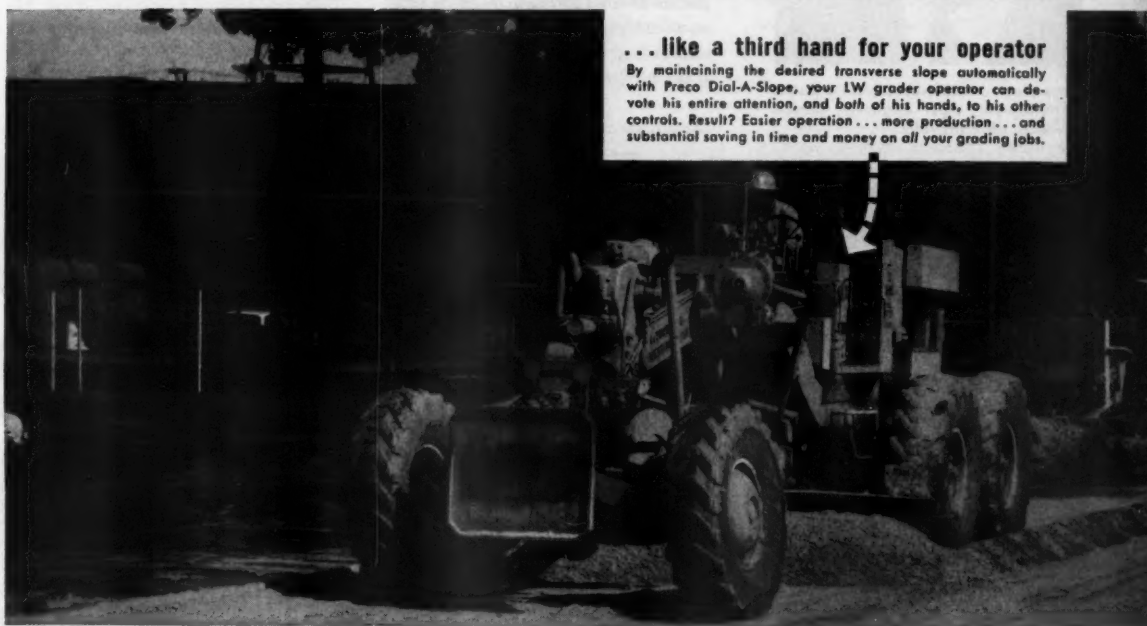
Prime-Mover M-30A gives high production on the toughest jobs. More trips, less maintenance, smoother operation, with exclusive hydraulic torque converter drive. Hauls 2/3 yard or 1-1/2 ton. Bucket and flatbed interchangeable. Write for proof of production performance. Prime-Mover Co., Muscatine, Iowa.



with torque converter drive

PRIME-MOVER

For more facts, use Request Card at page 18 and circle No. 371



... like a third hand for your operator

By maintaining the desired transverse slope automatically with Preco Dial-A-Slope, your LW grader operator can devote his entire attention, and both of his hands, to his other controls. Result? Easier operation... more production... and substantial saving in time and money on all your grading jobs.



graders with Dial-A-Slope blade control save you time, money

Where do you use a LeTourneau-Westinghouse grader equipped with Preco Dial-A-Slope automatic blade control? *Anywhere and everywhere!* It is effective on *every* phase of grading—from the roughest to the finest—with these particular benefits in finish grading:

Reduces grading time by 50%: A given grade can be completed in up to *half* the time it usually takes. In many cases, finish grade can be attained with *only one pass*—and is usually accepted on the first inspection without need for rework.

Accuracy of 1/10 of 1 percent: Dial-A-Slope electronically holds the blade at the *exact slope the operator has selected*. As he manually raises and lowers the toe of the blade to cut the longitudinal grade, the "automatic" end *instantly* follows his every move... maintaining the transverse slope to an accuracy of 1/10 of 1 percent.

Reduce staking costs: Your operator carries the slope across the *entire* width of the grade from *one* row of stakes. Intermediate rows of stakes (even on super-elevated curves) can be eliminated or re-

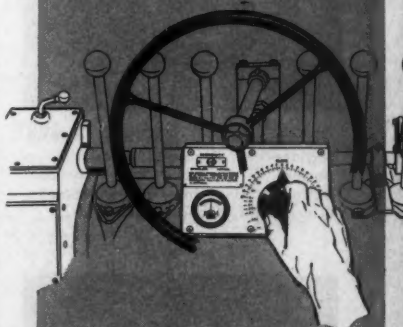
duced. Labor costs for auxiliary help, such as grade-checkers, are also reduced.

Save material: By insuring a smoother and more accurate finished surface, use of the Dial-A-Slope will result in more uniform thicknesses, hence substantial savings in costly imported base and/or paving materials. For example, a saving of just 1/4-inch of thickness on one mile of minimum-width freeway amounts to a saving of 195 cubic yards of material.

Installed easily and quickly

Preco Dial-A-Slope can be installed on any new or used current-model LW grader... from the 85-hp "330" to the 190-hp POWER-Flow® 660. We will be happy to give you complete information and arrange for a demonstration.

You're invited to see new color film...



Feature: "Dial It"—the Automatic Blade Control.

Plot: How Dial-A-Slope thinks for itself.

Show time: At YOUR convenience.

Admission: FREE... for a showing, just call your LW Distributor.

G-2392-G-1



LETOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

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New elected ARBA president is Ralph Bartelsmeyer, chief engineer, Illinois Division of Highways.



ARBA's new vice president—Boyd S. Oberlink, senior vice president, Allis-Chalmers Mfg. Co., Milwaukee, Wis.



Maurice Quade, president, ARBA's Engineering Division. Quade is a partner in the New York City consulting engineering firm of Parsons, Brinckerhoff, Quade & Douglas.



ARBA's executive vice president, Louis W. Prentiss, reports to the convention new developments in the highway program.

ARBA at 59th convention backs President on Interstate program; equipment symposium discusses productivity and quality control

Meeting only a week after President Kennedy delivered a special message to Congress on highways, the American Road Builders' Association went on record as endorsing the President's financing policy providing for the completion of the Interstate program with no stretchout and no cutback. ARBA also backed President Kennedy's program for increasing federal authori-

zations for improvements on regular federal-aid highways commonly known as the ABC systems. The association declared its opposition to any diverting of money from the Highway Trust Fund for any purpose other than engineering and construction of federal-aid, forest, and public-lands highways.

Highlight of the 59th annual con-

vention, held in Atlantic City, N. J., March 5 to 8, was a technical session devoted to a symposium on highway equipment. Participating in this panel discussion were representatives of equipment manufacturers, contractors, federal and state highway engineers, and university professors.

Ralph Bartelsmeyer, chief engineer, Illinois Division of Highways, was

Across Dynamic Southern California..

SAN DIEGO GAS AND ELECTRIC CO. MEETS BOOM WITH GAR WOOD-BUCKEYE DITCHERS



San Diego is moving almost as fast as the jetliners and missiles made there. The population has nearly doubled in the past 10 years. In San Diego County, in 1959 alone, 28,788 new dwelling units were built. All this means plenty of work for the San Diego Gas & Electric Company.

To handle one of its toughest job—digging trenches for new gas lines—the company operates a rugged team of 12 Gar Wood-Buckeye ditchers.

Speed is important in gas line ditching—you have to match the fast pace of modern construction methods. And speed is what Gar Wood-Buckeye ditchers offer; speed, precision, and both ease and economy of operation.

Since their introduction, the Gar Wood-Buckeye 305, 307, and 308 utility ditchers have become recognized as the most modern wheel-type utility ditchers on the market. One reason is hydraulics—all three are equipped with a hydraulic wheel hoist and hydraulic conveyor drive as standard equipment. All three have multi-engine transmissions specially designed for ditcher use. All three have a split-shaft excavator drive for longer working life. And all three are operated with the simplest group of controls on any ditching machine.

From mammoth pipeline ditchers to the smallest utility machines, Gar Wood-Buckeye has led the field for more than 60 years.

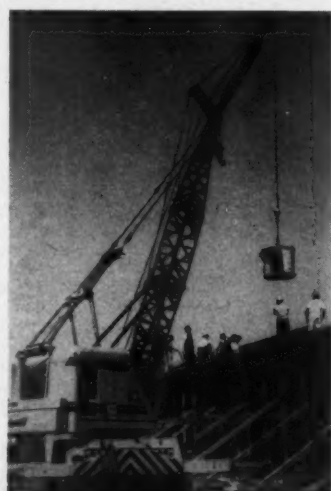
SAN DIEGO, RIVERSIDE LATEST TO CHOOSE GAR WOOD LOAD-PACKER



With an eye on both economy and efficiency of operation, sanitation officials in both Riverside and San Diego have chosen the Gar Wood Load-Packer 600.

Tremendous savings in refuse collection are possible with the Load-Packer. The reason: the Gar Wood unit packs between 25 and 50% more pounds per minute than any competitive machine. This speed of operation allows cities to use fewer machines for the same amount of work, and save thousands of dollars in labor costs each year.

Today, communities in every part of the world depend upon Gar Wood for efficient, economical, sanitary refuse collection.



San Gabriel Builder Calls Gar Wood Crane Key to Fast Pour Schedule

Gar Wood truck cranes are helping to keep large construction projects on schedule in many areas of southern California. An example is this unit, used by the Beckner Construction Co., Inc. of South San Gabriel for precision spotting of concrete buckets. The builder states the Gar Wood crane is "a major key to concrete poured on-schedule."

El Segundo Hauler Chooses Gar Wood Dump Bodies and Hoists

All types and sizes of Gar Wood dump bodies and hoists are in use throughout southern California. This unit was purchased by the Paramount Sand Co. of El Segundo for hauling blasting sand. The owner, Charles Settle, shown talking with Phil Hanson, Los Angeles Gar Wood-St. Paul distributor. Gar Wood is the world's largest manufacturer of truck equipment.

Kennedy's highway policy

Contractors and Engineers staff article

ected president of ARBA. He succeeds contractor Nello L. Teer, Jr. of Durham, N. C. ARBA also elected a new vice president, Boyd S. Oberlink, senior vice president of Allis-Chalmers Mfg. Co., Milwaukee, Wis.

Better highways

Progress of the Better Highways Information Foundation, organized a

year ago, was reported on by its president, Ellis L. Armstrong, former U. S. Commissioner of Public Roads. Armstrong stated that BHIF takes up where such organizations as ARBA leave off—to cut across all groups to provide a unified approach to getting sound, unbiased information about the Road Program to the public. Various "good roads" organizations have

been established for this purpose in all the states. A movie, illustrating the benefits to Mr. and Mrs. America and their family, of an adequate, balanced, highway program, is now being filmed.

Other BHIF activities, according to Armstrong, include a Workshop Conference on public understanding organized for March 27-29 in Washing-

ton, D. C., in cooperation with the American Association of State Highway Officials, and National Highway Week, established for May 21-27. That week, said Armstrong, will be used "to emphasize our national highway program and focus attention on our accomplishments and our problems ahead."

Whitton speaks

In an opening-day address, Rex M. Whitton, Federal Highway Administrator, said that he believed the National System of Interstate and Defense Highways can and must be completed in 1972. He cited three problems to this realization: (1) additional financing; (2) so-called "scandals" in the highway program; and (3) public apathy.

To solve the first problem, Whitton said, Congress would have to accept President Kennedy's financing plan. "In general," he stated, "it would continue the federal gasoline tax at 4 cents per gallon, raise the diesel-fuel tax from 4 to 7 cents per gallon, and increase levies on tires, inner tubes, tread rubber, and gross weight of heavy trucks. The scheduled transfer of certain excise-tax revenues from the General Fund to the Highway Trust Fund would be rescinded."

As to the "scandals" in the highway program, Whitton pointed out that "the public has a huge investment in this great program and it must be fully protected. In this effort the contractors, as well as the sup-

Gar Wood's AT WORK!

San Diego Freeway Contractor Meets Breakneck Schedule with Gar Wood Hopper Trains



Southern California's road building program is on the move—and it's moving fast. More than 50 miles of freeway construction are projected for 1961. To a contractor involved in the program this means getting the highest possible production in the shortest possible time.



M. J. HOMEN

It's particularly true for Manuel J. Homen Trucking, Inc. of Upland—one of the largest dirt hauling contractors in California. Homen recently completed hauling 2.4 million tons of landfill for the San Diego Freeway project in record-breaking time. This contractor now is moving 3 million tons for another span of the freeway, under subcontract to the Griffith Co. of Los Angeles.

Again, time is of the essence. Homen's fleet of hopper trains is hauling 15,000 tons each day. Homen himself is so impressed with the production efficiency of Gar Wood hoppers that he recently purchased 11 new Gar Wood trains. His fleet now totals 30 trains—26 of which are Gar Wood.

"Competition in today's construction business demands equipment that will provide maximum payload, speed and versatility with minimum downtime," says Homen. "We're getting just that from our Gar Wood hopper trailers."

Homen's top-capacity payloads are made possible by the Mono-Shell construction of the Gar Wood hopper. Gar Wood has eliminated the heavy trusses found in other units and distributed the weight over a much greater axle span. In addition, Gar Wood's air-operated gates let Homen unload his hoppers while they are still in motion—sometimes as fast as 35 mph!

GAR WOOD INDUSTRIES, INC.
Wayne, Michigan • Findlay, Ohio

EVOLUTIONARY HYDRAULIC SYSTEM AT WORK IN LOS ANGELES SAND AND GRAVEL OPERATION

Gar Wood's revolutionary new pump, controlling a Gar Wood dozer blade on a Euclid C-6, saving fuel and maintenance dollars for the Century Rock Co. of Los Angeles.

This variable volume piston pump delivers oil only when there's a job to be done. It allows the operator to convert tractor horsepower to the requirements of both blade and

crawlers, thus saving both horsepower and fuel. And because Variacs works less and works easier, it has a far longer working life.

Variacs virtually eliminates heat build-up, the main enemy of hard-working hydraulic systems. It is both faster and stronger—combining significantly greater lifting power with almost twice the blade speed at ground level of competitive hydraulic systems.



For more facts, use Request Card at page 18 and circle No. 372

only
DAVEY
Rotary Compressors
have Perma-Vane* blades

Model 600

Perma-Vane blades are made of special light metal alloy. They eliminate the greatest single source of rotary compressor trouble... are free from deterioration and breakage... offer maximum wear resistance, longer operating life. Write for Bulletin E-263.

*Registered tradename. Perma-Vane blades are covered by U. S. and British patents. A-4927A

DAVEY COMPRESSOR CO.
Kent, Ohio
distributors everywhere

For more facts, circle No. 373



Outgoing CIMA president, Donald V. Buitenhuis, receives a clock from Robert P. McKenrick, CIMA executive director, as a token of esteem from the manufacturers' division of ARBA.

pliers of equipment and materials, can lend us valued assistance. It is your legal and moral responsibility, not only to give full value for every public dollar spent, but to be constantly alert for shady practices. After all, it takes two to make a conspiracy."

Public information should help to counter public apathy, Whitton maintained. "I hope to increase and improve our own public-information efforts in the Bureau," he said, "and to render greater assistance to the states in this field than we have been able to do in the past. Successful operation here would be most helpful in clearing up the other problems."

New legislation

Later during the convention, the executive vice president of ARBA, Louis W. Prentiss, stated that Rep. George H. Fallon (D., Md.) had drafted legislation that would implement President Kennedy's program by increasing the federal authorizations in an amount to cover the federal share of completing the Interstate program. His bill also provides for acceptance of the 1961 Interstate cost estimate. It is presumed that hearings will start soon on this legislation, Prentiss added.

Gen. Prentiss urged ARBA to "get solidly behind this bill and see that it is understood by the people back home. It comes as close to being a bipartisan approach to solving the highway problem as possible, since its basic approach to financing reflects both Eisenhower and Kennedy thinking. We can expect strong opposition to several of the financing provisions, but I believe that the people want these roads, and are willing to pay for them if given a chance. Let's give them a chance."

Gore is critical

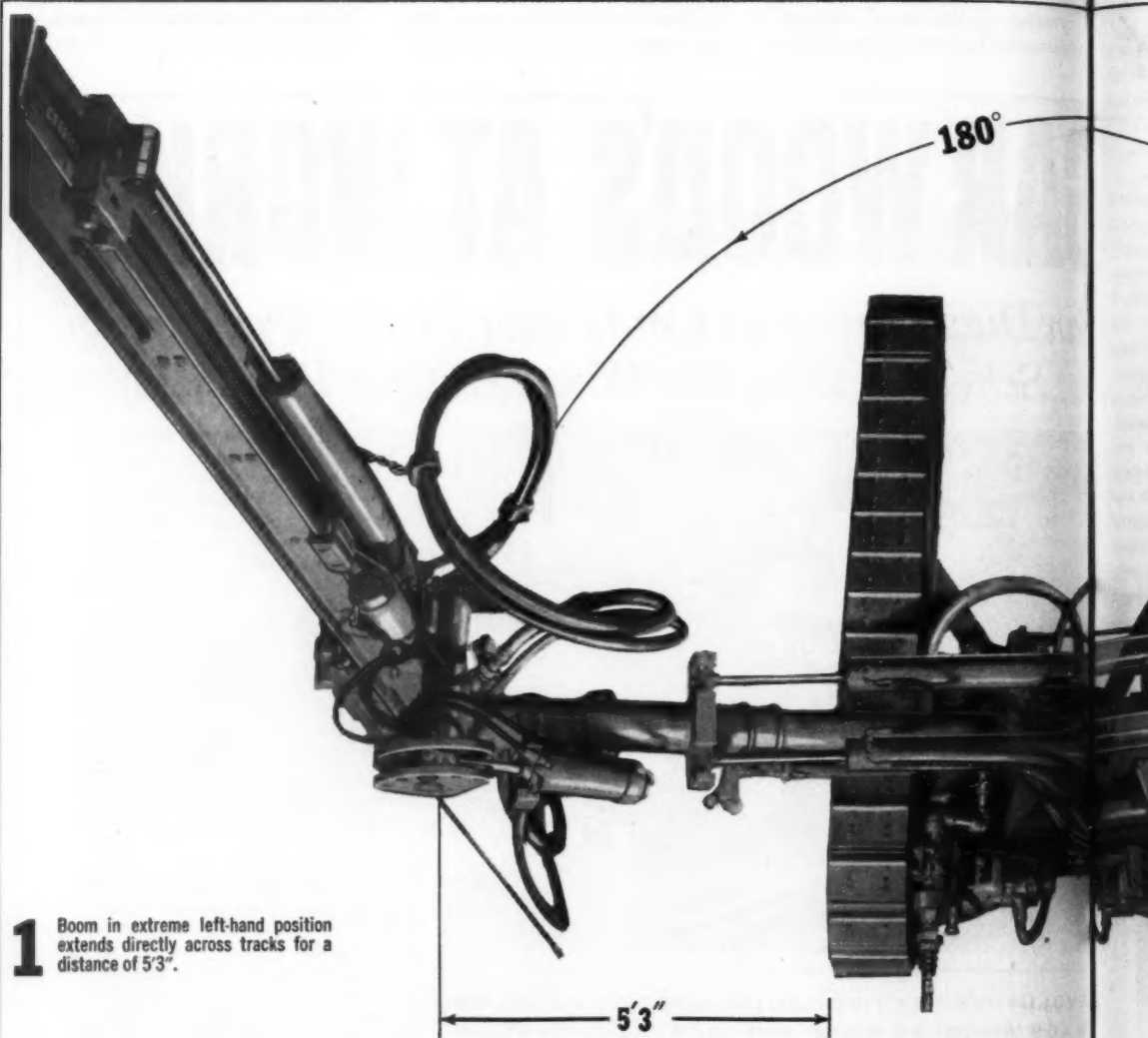
Sen. Albert S. Gore (D., Tenn.) at a luncheon session criticized a recent report issued by the Bureau of Public Roads indicating that as of December, 1960, a total of 10,440 miles of the Interstate System, about one-fourth of the total mileage, had been opened to traffic. "But this figure is misleading," said the senator, "Of the 10,440 miles, 2,264 are toll roads incorporated into the system, and another 3,041 miles have been constructed only to meet

the traffic needs of today and will require further improvement to meet the needs of 1975. Only 5,135 miles of the 41,000-mile system have been fully completed since the Act of 1956 was passed."

In referring to President Kennedy's solution of the highway financing problem, Senator Gore said, "His choice was, in my opinion, an unhappy one. Not only are highway users expected to pay in full the cost of highways by special taxes, but other special taxes are levied upon them to provide funds for the General Treasury. It seems to me that if we are to follow the question-

able principle that highway-user taxes must pay for highways, then we ought at least to use for highways all revenues already received from this source before further increasing highway-user taxes. . . . Before raising taxes on anything or anybody, we ought to close the tax loopholes which make a mockery of the concept of an income tax levied fairly and in accordance with the ability to pay. This would not only balance the budget but provide a surplus with which to meet the nation's urgent needs for improvement of facilities and programs."

At another luncheon session, Sen. A. S. Mike Monroney (D., Okla.), who



1 Boom in extreme left-hand position extends directly across tracks for a distance of 5'3".

TRACDRIL'S 180° "BOARDING HOUSE REACH"

The construction team of Briggs-Connelly-Dennis, working the difficult Route 40 Relocation through the Donner Pass at Truckee, California, found that with the full 180° ground coverage of the G-900 fewer moves are needed . . . that more blast holes could be drilled from every set-up.

The high altitudes didn't bother the CP-600 "Power Vane" Rotaries either . . . singly or in batteries . . . they kept the Tracdrils at full throttle 'round-the-clock.

Rugged, boulder-strewn country couldn't stop the Tracdrils . . . the worst footing was taken in stride.

In addition to the time-saving advantages of a 180° "Boarding House Reach," G-900 Tracdrils have the reputation for:

- Remarkable ability to shift from straight verticals . . . to high horizontals, 11 feet at the face . . . or to snake holes at ground level.
- The real advantage of two sets of grouped controls . . . one at turret, one at boom end . . . saves drillers time and steps.
- Heavy-duty brakes that lock and hold the instant tramming throttle is released.

You'll want a copy of Bulletin SP-3267 that includes complete specs, operating diagrams and dimensions on the revolutionary new G-900 Tracdril. Write today to: Chicago Pneumatic Tool Company, 8 East 44th Street, New York 17, N. Y.



ROCKY LEDGES, with sheer drops are common in the Donner Pass. Knee-action tracks and fast-acting automatic controls combine a stable drill mount with driller safety.

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ays all reve
this source
highway
raising tax
we ought to
which make
an income
accordance
This would
et but pro
to meet the
r improve-
grams."
ession, Sen.
Okla.), who

is chairman of a U. S. Senate sub-
committee on aviation, called for "a
new concept of our airport system—
and here we must join hands with
road builders to see where more air
space can be developed. We can't ac-
tually expand air space, but we can
make more available by ground separa-
tion—by building new airports in
uncongested areas. Fast, limited-ac-
cess roads to airports will provide for
this traffic separation to create
broader areas of usable air space
near cities. Airports located on super-
highways or toll roads can be served
at 25 miles from the city center with
greater speed than airports located

within 10 or 12 miles using old-fash-
ioned 2-lane roads. Time in traffic,
not distance, is the critical factor."

Developments in steel

"New Developments in the Struc-
tural Steel Fabricating Industry" was
the subject of a paper delivered by
Mace H. Bell, chief engineer, Ameri-
can Institute of Steel Construction,
at a technical session. Besides the
three dimensions of space—length,
width, and depth—the steel designer,
according to Mace, has available a
fourth dimension—material selection.

"Structural steels," he said, "are
now available in yield strengths rang-

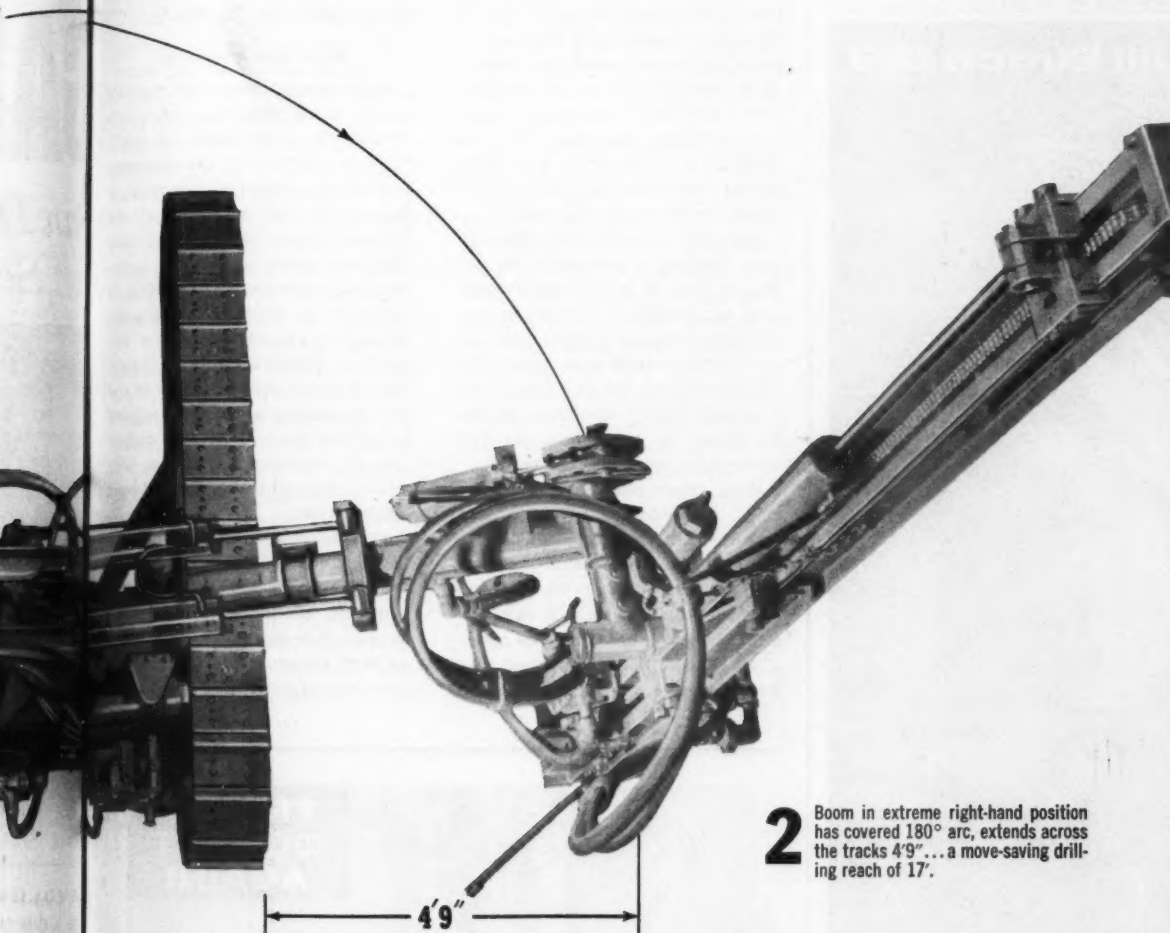
ing from a low of 32,000 psi for the
carbon steels to a high of 100,000 psi
for the heat-treated alloy steels. . . .
Using the 'fourth dimension,' we
specify highest-strength structural
alloy steel for girders subjected to the
highest bending moments. For gird-
ers subjected to moderate bending
moments we select high-strength,
low-alloy steel. Finally, for girders
subjected to low bending moments we
specify structural carbon steel. This
is precisely what is being done in
contemporary bridge design."

Mace also touched on composite
steel and concrete design and the use

(Continued on next page)

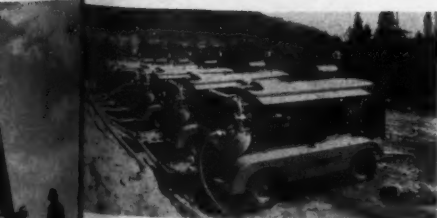


At the Bethlehem Steel Co. exhibit,
Jack Pope of Bethlehem gets some ad-
vice from L. Abbot Post, executive
director of the American Institute of
Steel Construction.



2 Boom in extreme right-hand position
has covered 180° arc, extends across
the tracks 4'9" . . . a move-saving drill-
ing reach of 17'.

"BOARDING HOUSE REACH" PAYS-OFF!



(Left) BATTERIES OF CP-600 "Power Vane" Rota-
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Feature: easy portability — low maintenance, high
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(Right) YOU CAN'T ALWAYS PICK the conditions . . .
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job . . . get the "Boarding House Reach" of a G-900
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ENGINEERS

APRIL, 1961

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TRACTOR LOADER DIVISION

EXPORT OFFICE:
50 South Street, New York, N.Y.

B-721

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Panel experts on "acceptance of new equipment developments" listen attentively at the highway-equipment symposium. John O. Morton, New Hampshire highway commissioner is between two contractors—R. W. Hyde, Hyde Construction Co., Jackson, Miss., and Ralph E. Heffner, Jr., Heffner Construction Co., Celina, Ohio.

of mechanical shear connectors. He reported that savings in weight of structural steel resulting from composite construction range from 8 to 30 per cent. Another new development is the use of prestressed steel beams.

"The concrete folks aren't the only ones interested in prestressed structural members," said Mace. "Built-up members of steel which have been welded under stress may soon provide builders with substantial savings."

According to the speaker, AISC has been studying orthotropic plate design, a type of bridge construction used successfully in Europe. In this method a steel deck plate is used in a dual manner—both as a support for the road surface and as a part of the structural system, specifically as the top flange of longitudinal carrying girders and transverse floor beams.

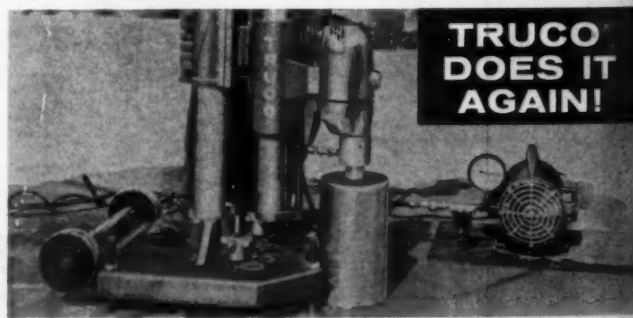
Mace also mentioned advances made in welded construction and high-strength bolting. "There are other striking developments that come to mind," he added. "One that will have particular impact in bridge construction is the new thin-web plate-girder design theory; another that may well have tremendous economic

impact in building construction is a fireproofing compound that 'puffs up' when heated to form an insulating blanket protecting the steel."

Equipment symposium

An equipment symposium was held at one of the technical sessions with Donald V. Buttenheim, president, Construction Industry Manufacturers Association, presiding. According to Buttenheim, the objectives of the symposium were: (1) to demonstrate the contribution of modern equipment and contractors' ingenuity to economy in highway construction through increased productivity and improved quality control; (2) to show what this new equipment can do and why specifications should be adopted permitting its use; and (3) to emphasize the economy in replacing outmoded equipment with new and more efficient types.

The president of Buttenheim Publishing Corp., publisher of *CONTRACTORS AND ENGINEERS*, suggested that additional tax incentive is necessary to encourage contractors to modernize their equipment fleets and equipment manufacturers to update their



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Tru-Vac® Vacuum Pad anchors machine to drill 300 holes up to 6" O.D. in 9" extra hard aggregate with 4 to 6 rods per hole.

PROJECT: Methodist Hospital of Central Illinois, Nurses' Dormitory, Peoria, Ill. **EQUIPMENT:** Truco Model A Portable Diamond Drilling Machine; Truco Tru-Vac Vacuum Pad; Truco Diamond Drill Bits. **JOB:** drill nearly 300 holes in lift floor slabs 9" thick, extra hard aggregate, heavily reinforced with rods 1" to 1 1/4" dia.; most holes had 4 to 6 rods. Holes 2" to 4" for electrical services; 3" to 6" for water, sewer, fire lines.

No anchor holes allowed, no ceiling against which to jack telescoping center column of Truco machine. Contractor used Truco Tru-Vac Vacuum Pad to anchor machine to floor with up to 1000 actual pounds of vacuum. Holes averaged under 20 minutes each including set-up. Write for Bulletin SC-7.

TRUCO MASONRY DRILLING DIVISION

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CONTRACTORS AND ENGINEERS



The U. S. Steel booth at the Material and Services exhibit featured a 38-foot mural depicting the contribution of steel to road building. Girl "tramp" hits the road in pantomime, to a taped telephoned message that the audience gets through "phonomimic" technique.

plants. Bittenheim also posed the formation of a Joint ARBA-AASHO Committee on Equipment.

"Such a joint committee would have representation," he said, "from the two associations and the Bureau of Public Roads. Its major function would be to seek out and remove road blocks which are hampering the development and use of improved equipment in the highway program. This committee, for example, could assist and advise in the development of construction standards for the Interstate System, and at the same time could insure that they are flexible so that integration of new and improved equipment into the highway program will be helped, not hindered. Similar Joint Committees on Compaction and Mixing Time are currently demonstrating their effectiveness in removing road blocks in these areas."

Radzikowski speaks

The symposium was moderated by H. A. Radzikowski, chief, division of development, Bureau of Public Roads. "In the symposium here today," Radzikowski said, "we are discussing 350,000 major units of construction ma-

chinery and motor vehicles produced by our equipment manufacturers. These units are owned by the nation's 11,000 highway contractors and by supporting equipment rental agencies. This huge equipment aggregation has a replacement value of approximately \$4 billion."

The BPR engineer pointed out that in the earthmoving field the productivity of excavation and hauling equipment has held the cost of common excavation at a nearly constant price level for over 30 years. That holds, too, for material processing, according to the speaker. He cited, for example, that the average bid price of producing, hauling, and placing crushed stone and macadam decreased from \$2.69 per ton in 1949 to \$2.20 per ton in 1959. This is a 22 per cent reduction during a period when the over-all price index of highway construction increased by about 14 per cent.

Radzikowski also referred to paving operations and the on-site mixing of portland-cement concrete in which pavers can produce high-quality concrete in 50 seconds of mixing. The

(Continued on next page)



Atomic Reactor Facility, Cornell University, Ithaca, N.Y.

Catwalks Haunches Poured Together with Symons Steel-Ply Forms

Rouse Construction Company, Gouverneur, N.Y., with Symons Steel-Ply Forms was able to pour the walk around the reactor along with the catwalk and haunch above it monolithically. Pours approximated 16 feet per lift on this phase of the project. Symons Steel-Ply Forms are rented with purchase option. Symons Clamp & Mfg. Co., 4251 Diversey Avenue, Dept. D-1, Chicago 39, Illinois.

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MARION HOPPER TRAILERS

OHIO FIRM USES MODERN MARION HOPPERS TO MOVE BIG TONNAGES

Nine hours a day—five days a week, three Marion Hopper Trailers haul tons of material from pit to tipples for American Aggregates Corp. of Greenville, Ohio.

They have performed this heavy chore with "very little trouble. And that's saying quite a bit, because they are really put to the test every day," says Plant Manager Leo Hinders.

Since purchasing their first Marion in 1953, American Aggregates have added two more, one in 1955 and their third in 1960. This confidence in Marion Hoppers can only come from dependable on-the-job performance witnessed by men responsible for running their business at a profit.

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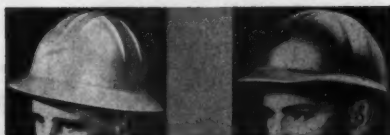
6 Jackson Safety Hats & Caps



FIBER GLASS hats (left) and caps are compression molded with polyester resins. They exceed Federal specifications. Eight colors.



ALUMINUM hats and caps are light and strong, pass Federal specifications for impact and penetration resistance. Polyethylene fixed-safety-margin headgear are easy to adjust and clean. Eight colors.



DIELECTRIC plastic hats and caps pass Edison Institute specifications for electrical resistance and Federal specifications for construction workers. Polyethylene headgear. Four colors.



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Earthmoving is under discussion at this point during the symposium on highway equipment, part of a technical session held in Haddon Hall Hotel.

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Only 4 moving parts. Convert to power steering in less than 1 day. Fast, positive steering action works full time . . . increases efficiency of machine and operator. Simplified design cuts maintenance to absolute minimum.

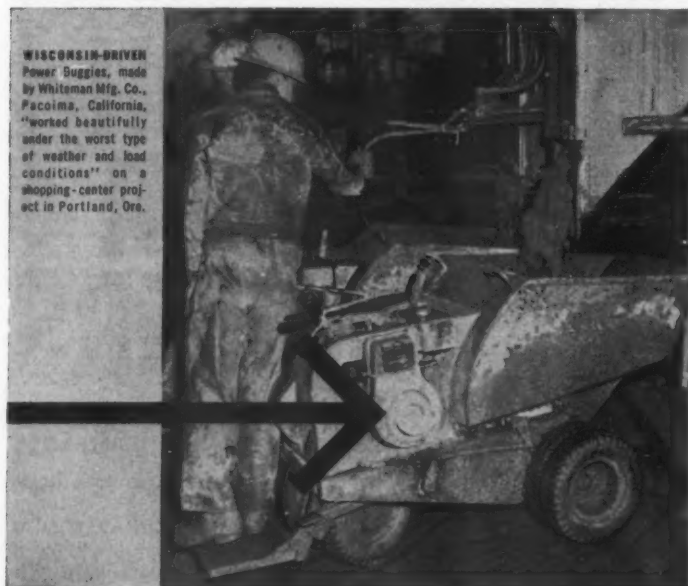
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WISCONSIN-DRIVEN
Power Buggies, made
by Whiteman Mfg. Co.,
Pacoima, California,
"worked beautifully
under the worst type
of weather and load
conditions" on a
shopping-center project
in Portland, Ore.



7-hp WISCONSINS defy foul weather and grueling pace

Hauling concrete under miserable winter conditions calls for truly rugged engines, like the single-cylinder Wisconsin on the Power Buggies shown above. The engines worked so well that the customer added several new Buggies to the fleet of 14 he used to keep this \$21,000,000 shopping-center project on schedule.

The 7-hp BKN Wisconsin are precision-built to stand up under the grueling power demands of tough, dirty jobs like this. Their high torque eases heavy loads into top speed —

and moves them through mire and up grades without stalling the engines or work progress.

The BKN's slash upkeep. Thrust-absorbing tapered roller-bearings on the forged-steel crankshaft virtually eliminate bearing failure. The high-tension magneto is weather-sealed — and is mounted outside for fast, easy access and servicing.

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benefits derived from these and other improvements will be felt in lower contractors' bid prices, the speaker suggested, "if timely revisions in highway construction specifications permit their use at full productive capacity."

The symposium discussed earthmoving, material processing, paving, and acceptance of new equipment developments. Some 27 panel members, manufacturers, contractors, engineers, and educators spoke on the subjects in which they are considered experts, and answered questions from the floor.

The final convention session was also a panel discussion on the topic "Industry Talks with Congress." The panel included members of Congress and representatives from all segments of the highway industry. It was moderated by Bertram D. Tallamy, former Federal Highway Administrator during the last four years of the Eisenhower administration, and now a consulting engineer.

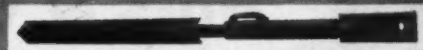
At this meeting, Tallamy was the recipient of ARBA's first annual award for exceptional service to the Road Program. In presenting the award, Nello L. Teer, Jr., retiring president of ARBA, said that Tallamy had just completed an outstanding term of service as Federal Highway Administrator. "Through diligence and diplomacy, through a policy of dealing honestly and fairly with all," Teer said, "he had led the national highway program through a most difficult period."

Only the day before, Tallamy had been cleared by a special 3-member committee appointed by the New York State legislature to investigate the propriety of a contract given him by the New York State Thruway Authority. Tallamy, who was chairman of the Thruway Authority before going to Washington, was given a contract to develop a long-range maintenance plan for the toll road. His fee was to be \$200 a day, and he was also authorized to engage Senior, Bissell &

2 More Ellis Money-Savers

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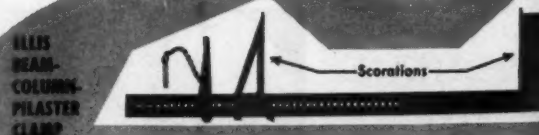
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ELLIS WALL-BEAM BRACE

... Ellis Methods' turnbuckle device for bracing and quick alignment of wall forms (used at either end of a wood brace), spandrel beam forms, or column forms . . . nail to wood member with duplex nails, adjust with claw hammer!

And . . .



The Ellis B.-C.-P. Clamp, adjustable from 5" to 30", proves equally effective on beam, column, or pilaster forms. No need for most cleats, walers, scabbing, bracing, nailing . . . meaning big savings on lumber!

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CONTRACTORS AND ENGINEERS

Brookie, a Buffalo, N. Y., engineering firm to help with the study under a maximum cost of \$200,000. Tallamy had formerly been associated with the Buffalo engineers, and his son, Bertram F., was made a partner in the firm in January, just before the contract was awarded. Democrats in the legislature had charged favoritism by



The Atomic Energy Commission demonstrated its place in the highway industry. J. Clarke Williams and H. A. Rodzikowski, both of the Bureau of Public Roads, discuss a gage that measures density and moisture content by a nuclear method.

Republicans in the award of the Tallamy contract. The only two members of the Thruway Authority who awarded the contract are officials of the Republican State Committee.

ARBA elections

New division officers were also elected at the annual meeting. The Contractors Division elected for its president James E. Lambert, head of the Lambert Construction Co., White River Junction, Vt. A contractor for 26 years, Lambert has been vice president of the Contractors Division for the past two years, and has been on the board of directors. He was the first president of the Vermont Road Builders' Association, and in 1954 was president of the New England Road Builders' Association. Division vice presidents are Ralph Heffner, Heffner Construction Co., Celina, Ohio, and Ed. G. Langston, Langston Construction Co., Orlando, Fla.

The Engineering Division elected as its president Maurice N. Quade, partner in the New York City consulting engineering firm of Parsons, Brinckerhoff, Quade, & Douglas. Mason G. Lockwood, of Lockwood, Andrews & Newman, Houston, Texas, was elected vice president.

The Construction Industry Manufacturers Association, ARBA's Manufacturers Division, elected A. J. Lich-

tinger president. He is executive vice president, Wellman Engineering Co., Cleveland, Ohio. First vice president is Buel M. Wallis, vice president of Schield Bantam Co., Waverly, Iowa; second vice president is Robert E. Hunter, general sales manager, Detroit Diesel Engine Division, General Motors Corp., Detroit. Ray McLean, treasurer, is president of the Jaeger Machine Co., Columbus, Ohio. Secretary Robert P. McKenrick is executive director of CIMA.

A Materials and Services exhibit with 43 exhibitors was held throughout the convention in the Haddon Hall hotel. A total of 928 registered for the meeting; this figure included 154 wives. ARBA's 60th annual meeting in 1962 is scheduled for San Francisco. THE END



ARBA's Contractors Division elected for its president James E. Lambert, shown here with his wife. Lambert is also president of Lambert Construction Co., White River Junction, Vt.



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TRENCHER ON RUBBER
TIRED WHEELS... WILL
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For real ditching mobility and versatility, a SPEICHER tandem traction trencher can't be beat. Big or small jobs, near or far, you can drive this trencher to location at speeds up to 30 M.P.H. No time consuming loading on semi.
Cuts up to 6 ft. depth, from 12 to



Side mounted controls are at operator's fingertips. Permits operation from standing or sitting position, on or off the platform.

24 inches, with a digging speed of one to thirty feet per minute. Exclusive weight shifter lets you shift weight from front to back or from back to front at will. Low cost maintenance—long life. Write today for descriptive literature—we'll let the facts sell this trencher.

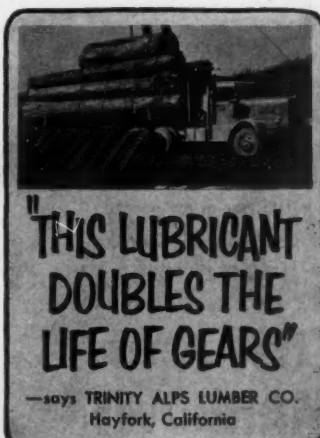
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For more facts, circle No. 387

New techniques help reclaim land in Holland

A large-scale reclamation program, currently in progress in The Netherlands, is expected to enable the country to reclaim many valuable acres of land by 1980. Seven centuries ago, the Dutch launched their battle against the sea. Now, the most modern methods of engineering and construction are being used to make the country virtually floodproof. The newest construction features dikes and a storm-tide barrier that shuts off a river from the ocean in times of strong winds and tides.

For centuries, Holland's dikes, as well known as her windmills, tulips,

and wooden shoes, have helped the country to reclaim land lost to the seas and inland-river overflows and to accommodate an ever-growing population. Today there are some 2,050 miles of sand dunes and dikes that prevent large sections of the land from being inundated during high tides and rainstorms. Several hundred windmills are also in operation, along with modern pumping stations, to keep the land—much of it below sea level—dry and habitable.

Besides protection of human life, other objectives of the Dutch dike program have been: to keep Holland's

soil free from salt wherever the sea water has infiltrated; to form freshwater reserves; and to acquire new land for cultivation.

Fight sea for centuries

Since the 13th century, the Dutch have been building dikes around the coast and along the rivers. They have dammed off small tidal creeks and river mouths, thereby increasing security against rising waters and gaining new land through drainage. Thus far, a total of 1,410,000 acres of land has been reclaimed. By 1980, the total will be 2,500,000 acres.

draining of the Zuider Zee River, a shallow gulf in the center of The Netherlands. When the five Zuider Zee polders (tracts of reclaimed land) are completely drained, a total of 544,000 new acres of cultivable land will be gained and Holland's land surface will be increased by 7 per cent.

Preparations for the Zuider Zee scheme were launched in 1919. Before the gulf could be drained, it had to be dammed off from the North Sea. When this was done, tidal movements no longer affected subsequent operations and flooding was virtually eliminated.

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A perimeter dike is under construction in the Zuider Zee area as part of a current reclamation project which will net Holland 544,000 new acres of cultivable land and increase its land surface by 7 per cent.

By the beginning of the 20th century, the coast line of Holland had been shortened to 1,100 miles. During the next 20 years, Holland's engineers hope to further shorten it to a mere 250 miles.

The biggest current reclamation project is the enclosing and partial

On completion of the 18 1/2-mile-long dam, the Zuider Zee was renamed the Yssel Lake after the largest of the rivers that flows into it. The Yssel's fresh water was of great value for the de-salting of the newly drained polders.

The danger of flooding has always



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Our Razor-Back and Razor-Lite shovels are forged with an extra-strong (13 gauge) center backbone that extends from the top of the socket all the way to the cutting edge. To lighten their weight, our blades are tapered thinner at the sides, where shovels never wear out. Give more service per dollar than any other contractor's shovel. The only shovels "fully guaranteed" in writing.

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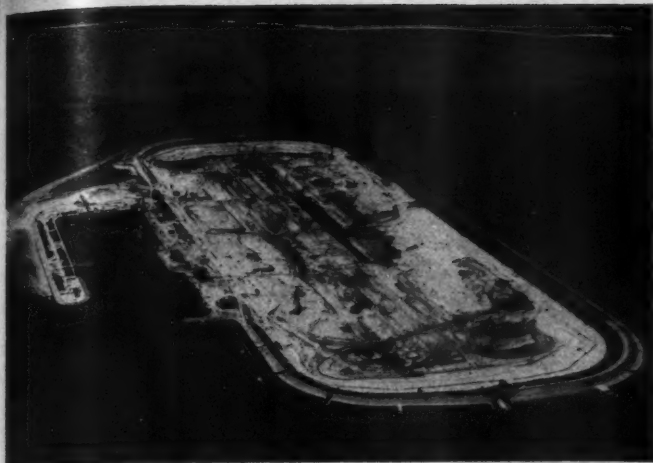
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RAZOR-LITE®
Strongest and Lightest Lightweight Shovel

THE UNION FORK & HOE COMPANY, Columbus 15, Ohio

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CONTRACTORS AND ENGINEERS



One of the latest projects in Holland's Delta Plan for reclamation is the 4-mile-wide Haringvliet estuary, which is to be sealed off from the sea. Excavation is under way for the sluices. It is scheduled for completion in 1968.

been most acute in the southwestern corner of Holland where a number of estuaries cut deep into the land. As a result of the disastrously high tides and floods of 1953, the Delta Plan was adopted by the government. Among other things, this plan provides for the sealing off of four wide and deep estuaries from the sea.

The Delta Plan also called for the construction of a movable storm-tide barrier in the mouth of the Hollandse Yssel River, just east of Rotterdam. Completed in 1958, the barrier comprises two movable steel gates, arranged one behind the other, which are suspended and lowered from concrete lift towers. When the river rises to a dangerous level, the barrier shuts off the river from the sea.

Among current work is the closing of the 4-mile-wide Haringvliet, the northernmost estuary. This involves erection of a dam, a number of sluices, and a lock for shipping. This work is scheduled for completion by 1968. Secondary dams will be built on three

inland waterways, and dikes along the coast will be made taller.

When work under the plan is finished, the influx of salt water will be halted and several large fresh-water basins will be formed that will gradually fill the subsoil with fresh ground water and expel the saline water. More water from the Maas and the Rhine rivers will then flow straight out to sea by means of a single discharge past Rotterdam, and this will have the effect of pushing the salt limit in these rivers farther toward the sea.

THE END

C. I. T. promotes

Nathan M. Oppenheim has been promoted to operating head of the Chicago division of the C. I. T. Corp., New York, N. Y., and has also been elected assistant secretary of the company.

Oppenheim is in charge of credit and operations for the division, which covers five midwestern states. He joined C. I. T. eight years ago.

Asphalt-paving group elects new officers

The Association of Asphalt Paving Technologists, Ann Arbor, Mich., elected James M. Rice of the Natural Rubber Bureau, Washington, D. C., president of the organization for 1961 at the group's 36th annual meeting in Charleston, S. C. He succeeds James E. Ward of Barber-Greene.

Other newly elected officers are: Frank M. Williams, Ohio Department of Highways, first vice president; and Ray E. Bollen, Highway Research Board, second vice president. New directors at large are B. A. Vallega,

Golden Bear Oil Co., and J. O. Isatt of the Shell Oil Co.

The Association's Annual Award for the best paper presented at last year's meeting went to L. W. Corbett and R. E. Swarbrick of the Esso Research & Engineering Co., for their paper entitled "Composition Analysis Used to Explore Asphalt Hardening." T. L. Speer, Standard Oil Co. Indiana, won honorable mention for his "Progress Report on Laboratory Traffic Tests of Miniature Bituminous Pavements."

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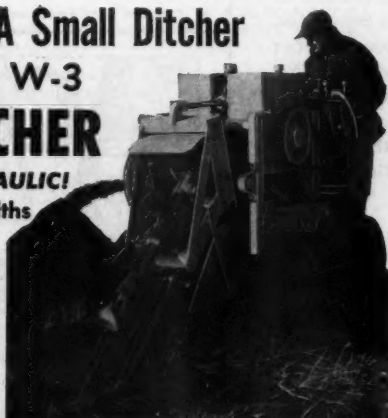
Porter serves industry with steel, rubber and friction products, asbestos textiles, high voltage electrical equipment, electrical wire and cable, wiring systems, motors, fans, blowers, specialty alloys, paints, refractories, tools, forgings and pipe fittings, roll formings and stampings, wire rope and strand.

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Digs 3" to 12" Widths

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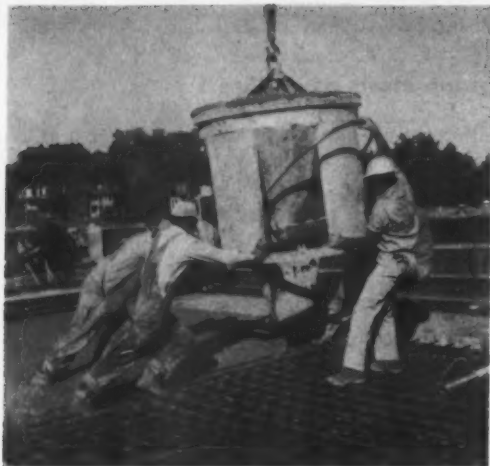
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C&E's March cover

Comments on cover photo

The Editor,
CONTRACTORS AND ENGINEERS

I should like to comment on your cover picture on the March, 1961, issue. Although it is compositionally strong, I noted the following discrepancies:

1. One of the workers does not have on a safety helmet—grounds for dismissal on our project (the Orlando Freeway or Interstate 4).
2. The cuffs of the workers are loose above their boots, another safety hazard.
3. The concrete bucket is too full.
4. Rather than tilt the bucket so far, the boom could be more easily moved.

5. Behind the work on the far right there is a twisted piece of projecting wire or rope, in either case an obstacle that could cause serious injury.

Enclosed please find a shot (taken by the undersigned) of a slab being poured on our project.

J. T. Potter

Harbert Construction Corp.
Birmingham, Ala.

Ed—Attention all safety-helmet salesmen!

Thin concrete patching subject of HRB bulletin

■ Bulletin No. 260, "Repair of Structures and Pavement by Thin Concrete Patching," is available from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C., for 60 cents a copy. It contains two reports: "Latex-Modified Mortar in the Restoration of Bridge Structures" and "Bonded Resurfacing and Repairs of Concrete Pavement."

The first paper contains a description of laboratory and field studies of the effectiveness of thin concrete patching of bridge structures, using portland-cement mortars containing admixtures of water-dispersed resin of a styrene-butadiene copolymer or a new latex emulsion of a Saran type.

The second report discusses bonded concrete construction and its applications to pavements, describes projects where this type of repair has been used, and illustrates the essential steps in surface preparation and construction.

AICE appoints officers

■ The American Institute of Consulting Engineers, New York, N. Y., has elected Gerald T. McCarthy, senior partner of Tippetts-Abbett-McCarthy-Stratton, New York, as president of the institute for 1961.

Also elected were Harold M. Lewis, consulting engineer, New York, as first vice president; and Gilbert I. Ross, partner, Ross & Co., New York, as second vice president.

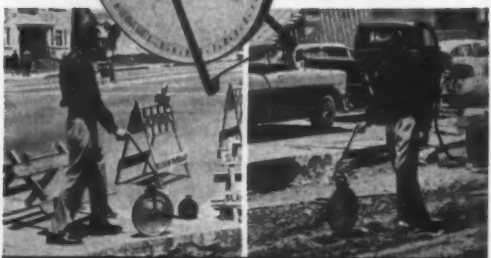
The following were elected members of the governing council for three years: David G. Baillie, Jr., partner, Singstad & Baillie, New York; James P. Exum, partner, Howard, Needles, Tammen & Bergendoff, New York; and Howard J. Williams, vice president, Fay, Spofford & Thorndike, Boston, Mass.



Photograph received from Harbert Construction Corp.



- ✓ STREET AND HIGHWAY PLANNING
- ✓ SEWER SYSTEM SURVEYS
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THIS SURVEYING INSTRUMENT measures any distance over smooth or irregular surfaces fast—with precision accuracy to a fraction of an inch. Records 100,000 feet automatically and the accumulated total is always in full view. **Calibrations** give inches and fractions on one side of wheel. **Tenths** of a foot are calibrated on the reverse side. Rolatape is ruggedly built to give years of service no matter where the job site may be. See your engineering and surveying instrument dealer or write for complete information today!

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Rolatape accurate measuring instruments

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MODEL 1600

no trick...

... to load heaviest equipment, including rollers, on this Wisconsin trailer. Heavier tail design reduces climb angle to 8°, insures fast, no-slip, safe, one-man loading. This rugged, durable, perfectly balanced trailer saves you dollars and man-hours. Doubler plates at all critical welds... exclusive, unbreakable rear channel mounting... won't tear away EVER. Boxed tongue assembly permits heavier transfer of load to towing vehicle. Model 1600 (16-ton capacity) only \$2900.00 w/tires and deck, plus freight and tax.



4- to 30-ton capacity trailers

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The 42 LB. **GRIPHOIST** TIRFOR

LIFTS • PULLS LOWERS 3300 LBS. Single Line

Capacity increased to 6 TONS with pulley blocks

Replaces chain hoists, air hoists, winches... less cost, less maintenance. Unlimited cable travel, portable, hand operated... faster, cuts rigging time... unmatched safety record.

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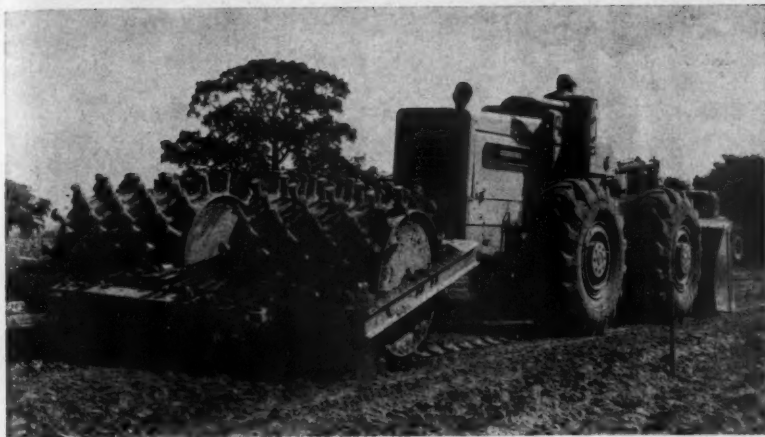
See your local dealer **GRIPHOIST, INC.**

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334 Granite Ave., Boston (Milton 86), Mass.

3,300 LBS.

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CONTRACTORS AND ENGINEERS



WORKING ON A ROAD-GRADING PROJECT for several miles of new Interstate 190 and 194 near Madison, Wis., is a Hough Model 90 Payloader tractor shovel owned by Hammersley Construction Co., of Madison. The 9,000-pound-capacity rig pulls a sheepfoot roller and at the same time uses its bucket to level the dirt as it moves along on the fill for a bridge ramp.

ALL
THIS

100% DUTY CYCLE
225 Amperes Rated Output
5 KW 115/230v AC
1 KW 115v DC
12.9 HP ONAN ENGINE



AND
NOW

ELECTRIC
STARTER

The world-wide respect and demand for this original Miller gas engine driven welder/power plant has never been greater. To this established popularity has now been added the convenience of Bendix drive electric starting as optional equipment on models AEA-200-L and AEA-200. Model illustrated and headlined is AEA-200-LE.

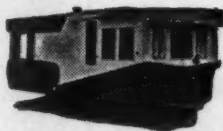
As a welder, as a power plant, as a pipe thawer, indeed, as a top hand from Canadian uranium mines to Brazilian cattle ranches — and on highway construction jobs and repair ships between — the AEA-200-L stands quite alone as "the finest in the field." In addition to optional electric starter, road trailers and rubber tired running gear are also available.

Other Miller gas engine driven DC and AC-DC welder/power plants to 300 amperes at 100% duty cycle. Full particulars will be sent promptly upon request, or a demonstration can be arranged at your convenience.

miller ELECTRIC MANUFACTURING COMPANY, INC., APPLETON, WISCONSIN
DIST. OFFICE: 230 West 37th St., New York 19, N.Y. • Distributed in Canada by Canadian Liquid Air Co., Ltd., Montreal

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McCARTHY MOBILE OFFICE TRAILERS



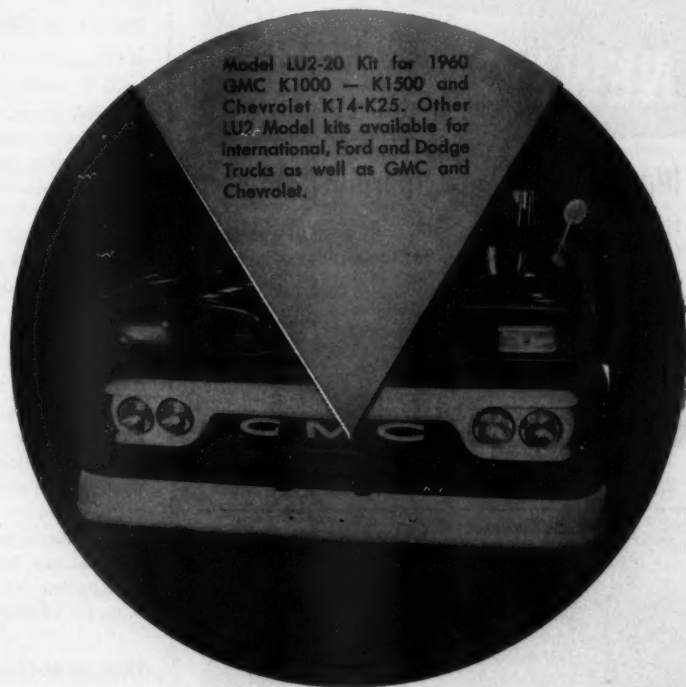
NOW AT LAST — Office Trailers at prices everyone can afford. Deal direct with McCarthy — no dealers, salesmen, middlemen, etc. — Result is Low, Low Prices to Contractors.

New 1961 aluminum 16' to 50' Office Trailers. 8' and 10' wide. Complete or shell models. On display-immediate delivery. Available with private office, drawing board, desks, toilet, heater, drapes, etc. Priced from \$1265. Delivered to most locations. Some used models available.

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A BRADEN Winch with Versatility Plus!



Model LU2-20 Kit for 1960 GMC K1000 — K1500 and Chevrolet K14-K25. Other LU2 Model kits available for International, Ford and Dodge Trucks as well as GMC and Chevrolet.

This lightweight, front end model is the sturdiest winch of its type ever developed. Top quality workmanship and finest materials, the same as found in heavier models, make the LU2 series a "workhorse" that will give years of dependable service.

This model is perfect for lifting, towing and pulling jobs that need careful handling. It has a safe working load of 8,000 pounds, and is designed for easy installation.

Write for complete information.



BRADEN WINCH DIVISION OF MOTOR PRODUCTS CORPORATION
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"In Service Around the World"

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I-H multipurpose unit built for Army engineers

■ Construction-equipment engineers of International Harvester Co., Chicago, are developing a new unit that can function as a crawler tractor, dozer, scraper, dump truck, grader, cargo carrier, and high-speed prime mover. The vehicle is also designed to carry personnel and weapons, and to operate with such allied equipment as crane booms, conveyor belts, winches, and earth augers. It can be carried by plane, and can travel across lakes and rivers at a speed of 4 mph.

Called the UET (Universal Engineer Tractor), the unit was designed and built by the Government Engineering Section of I-H's Construction Equipment Division, Melrose Park, Ill., under a research and develop-

ment contract to the U. S. Army.

To make the unit light enough to be airborne, the first prototype was constructed of 35 to 40 per cent aluminum. Key to the feasibility of the vehicle is a hydro-pneumatic suspension system that permits the driver to turn springs on and off at will by means of a control handle on the instrument panel. Sprung, the UET can move smoothly at a top speed of 30 mph. Unsprung, it is ready for action on its various applications.

The UET prototype is powered by a 250-hp (at 3,000 rpm), V-8, liquid-cooled gasoline engine. The unit is 220 inches long and can pivot 180 degrees in a space 23 feet wide. It can operate ascending, descending, or

side-slope on grades of at least 60 per cent. Nine feet high to the top of its windshield, it can lower its bowl and fold its windshield down, reducing height by 28 inches to meet air-drop requirements.

The first prototype is currently undergoing further tests by the U. S. Army Engineer Research and Development Laboratories, Fort Belvoir, Va.

HRB bulletin discusses soil-lime research

■ "Preconditioning and Stabilizing Soils by Lime Admixtures," Bulletin No. 263, reporting the research results of five studies on lime stabilization of soils, is available from the Highway Research Board, Washington, D. C.

The following papers are included in the 85-page illustrated bulletin: "Lime Stabilization Using Preconditioned Soils"; "Lime Fixation in Clayey Soils"; "Improvement of Lime Stabilization of Montmorillonitic Clay Soils with Chemical Additives"; "Reaction of Hydrated Lime with Pure Clay Minerals in Soil Stabilization"; and "Recent Soil-Lime Research at the Massachusetts Institute of Technology."

The bulletin may be obtained from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C., for \$1.80 a copy.

Slag association names

The National Slag Association, Washington, D. C., has elected H. T. Williams chairman of its technical committee. Williams was recently appointed consulting engineer for the Standard Slag Co.

Simplex representative

■ Simplex Forms System, Inc., Rockford, Ill., has appointed William Van Helden as sales representative for Iowa and the eastern half of Nebraska.

Van Helden was formerly with the firm's engineering staff, with responsibility for drawing up and estimating jobs for contractors, supervising form construction on various projects, and assisting in the design and development of much Simplex accessory equipment.



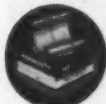
In unsprung state, International Harvester's multipurpose UET unit scrapes earth ballast into its bowl. Apron and dozer blade are partially raised to permit intake of earth.



Illustrated Engine Bearing Catalog

Now—20 page catalog of solid aluminum and steel-backed aluminum bearings for Caterpillar engines. Complete listings, easy-to-use.

FREE... Send for your copy TODAY!



Monmouth Engine Bearings

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MODEL H10 (ABOVE)

Gasoline-powered unit especially designed for surfacing concrete highways, runways, streets, floors. Includes exclusive power takeoff for attaching "BERG" flexible shaft surfacing equipment.

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"BERG" CONCRETE SURFACERS

For Surfacing:
Bridges, Highways,
Airport Runways, Dams,
Culvert, Floors, Walls.



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Lightweight, electric-powered unit that suspends from operator's shoulder. Equipped with interchangeable heads and attachments for surfacing bridges, buildings, dams, culvert, walls or similar surfaces.

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NEW "HATFUL OF SAFETY"
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SAFETY HATS & CAPS

TOUGH...ribbed crown for highest impact resistance. • **COOL**...reflects, does not absorb heat. Well ventilated. • **COMFORTABLE**...men prefer and like to wear SuperLite! • **ONE SIZE FITS ALL HEAD SIZES**. • **NO LACING**...exclusive design! Only headband over needs replacing...a big saving! • **TOPS IN HYGIENE**...easily sterilized. Waterproof. • **NON-TOXIC**...mildew- and fungus-proof Polyethylene suspension. No deterioration. • **FULLY TESTED**...to exceed highest safety standards. • **LIGHT-WEIGHT**...trim and good looking.

DUAL SUSPENSION
Suspension is both a "head" safety factor as well as an "adjustable" clearance from the skull.

Bulletin The **FIBRE-METAL** Products Company CHETTER PENNA.
No. 99 In CANADA: Fibre-Metal (Canada) Limited, Toronto

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Flexible STEEL LACING COMPANY
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For more facts, use Request Card at page 18 and circle No. 400

STEEL-PIPE PILING for the new cafeteria building at Convair Division's Plant No. 1 in San Diego, Calif., is being driven by a 30-ton American truck crane. The fifty-six 12 X .164-inch-wall piles, furnished by the Los Angeles office of L. B. Foster Co., were driven with a Vulcan No. 1 hammer powered by an 88-hp trailer-mounted boiler. R. E. Staite Engineering, Inc., of San Diego, drove piles 20 to 50 feet deep through very hard ground consisting mainly of decomposed granite. The piles have a design capacity of 50 tons.



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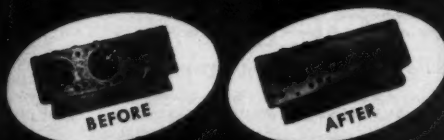
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For more facts, use Request Card at page 18 and circle No. 402

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You can save 50% of replacement cost with Factory Rebuilt Swick-Guth Heads. Swick-Guth restores cracked or worn heads, blocks, transmission cases to a Guaranteed good as new condition by the Controlled Heat Process . . . successfully used for more than a Quarter Century.

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SPECIALISTS IN WELDING DIESEL CASTINGS

For more facts, use Request Card at page 18 and circle No. 401

Chief engineer appointed for Chesapeake crossing

■ The Chesapeake Bay Bridge and Tunnel Commission, Norfolk, Va., has appointed Leon R. Johnson chief engineer for the 17½-mile highway being built across the mouth of Chesapeake Bay. Johnson is a founding partner in the Washington, D. C., firm of Johnson & Williams, consulting engineers.

The largest engineering project of its kind ever undertaken, the bridge-tunnel will link the southern tip of Virginia's Eastern Shore and the Norfolk area.

Caterpillar names

■ Caterpillar Tractor Co., Peoria, Ill., has appointed E. C. Chapman assistant manager of its sales development department. He has been manager of eastern sales for the company since 1956.

The company is merging its north-west and southwest sales divisions into the new western division, which will be managed by J. A. Justeson. W. E. McCoy, formerly manager of the southwest division, succeeds Chapman as manager of the eastern division.

Power-crane group elects new slate

■ Lewis C. Black, vice president of the Bucyrus-Erie Co., South Milwaukee, Wis., was recently elected president of the Power Crane and Shovel Association at its annual meeting in Chicago.

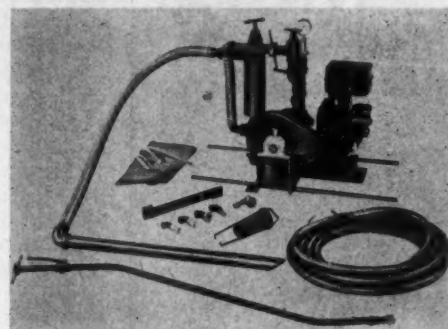
Also elected were: vice president Hugh B. Halloran, crane sales manager of Manitowoc Engineering Corp., Manitowoc, Wis.; secretary Herbert S. Blake, Jr., and treasurer Donald V. Reed, both of Organization Service Corp., New York, N. Y.

Union Metal appoints

■ The Union Metal Mfg. Co., Canton, Ohio, has appointed Kenneth C. Dorland general sales manager.

Dorland, who succeeds the late Louis P. Heckman, vice president in charge of sales, has been with the firm since 1925.

BARREL SPRAYER



TARCO "Portable Vac-U-Sprayer"

Here's a light weight, simple-to-operate, inexpensive spraying outfit.

Ideal for: Concrete Curing. Building sealed, contoured patches. Constructing driveways, parking lots, walks, tennis courts. Waterproofing foundations, roofs. Sub-sealing pavements.

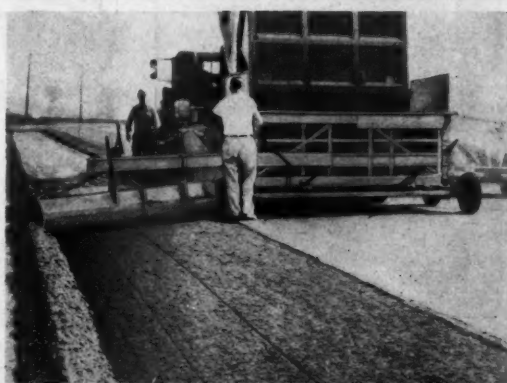
Gasoline engine drive. Positive displacement pump. Built-in material screen. Adjustable regulator and bypass. Sucks and sprays liquids direct from any container. Complete with: assorted nozzles, 25' of spray hose, suction hose, spray bar. Multiple-head, tail-gate spray bar and weed control spraying devices available.

Let your dealer or us give you complete details on this and other TARCO paving equipment

TARRANT MFG. CO.

32 Jumel Place, Saratoga Springs, N. Y.

For more facts, use Request Card at page 18 and circle No. 403



ROAD SHOULDER SPREADER

Model 605 Power-Pack truck drawn spreader places up to 6 ft. of material in one smooth, clean, uniform pass . . . quick cable hook-up for any size truck or trailer . . . capacity up to 4 yds. per minute depending on material . . . moved easily from job to job without trailer equipment.

See your dealer or write for details now!

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Management



by **GEORGE E. DEATHERAGE, P. E.**
construction consultant

Selecting alternative work methods

Both the simple process chart, which is used to determine the cost of each step in the job and the total cost of a work process involving a man or machine, and the gang chart, used for a crew of men and machines, have limited applications.

If more or less lumber, plywood, concrete, etc., are required for one possible method over another, these charts would not show it.

The LEM (labor, equipment, materials) Gang Chart in Figure 1 has been devised to cover this situation. It can be used as a simple chart, ordinary gang chart, or LEM chart, by simply utilizing the space and ruled columns required.

In the "LEM" form, columns have been added on the right-hand side for (1) quantity of work done per step, (2) unit cost of labor per step, (3) total labor per step (dollars), (4) unit cost of materials per step (dollars), (5) total materials per step (dollars or material units), and (6) equipment cost per step.

Through this work-simplification method, any job or work unit can be broken down to its minute parts and

the cost of each of these parts—labor, equipment, materials, and overhead—as well as the over-all cost of the job, can be determined. This can be done to build up a unit cost for estimating (proposed) or to "stop watch" any existing (present) work going on to check field unit costs. If a cost is out of line, it is a simple matter to put one's finger on exactly what is wrong.

Application of chart methods

The degree to which a contractor may wish to apply these work-simplification methods by the use of process charts is a simple problem in economics. How important is the work under consideration? Do the quantities of work involved warrant the expense of an analysis? Is the amount

of work (unit) small but highly repetitive so that small savings in losses loom large in the entire picture?

Assuming that a fair weekly salary for a man assigned to methods engineering is \$150 a week or \$30 a day, this figure can be used as a basis for determining whether or not it is economical to make an analysis. If the total labor cost for the job is \$300 and a 10 per cent saving can be made by spending a day's time in analysis, we have just broken even. Experience has proved that savings of from 10 to 15 per cent are quite easily made.

It follows that the larger the total labor cost, or the more often it is repeated, the more justification for analysis and the greater the savings.

*Weight?
Measurements?
Age?*

STA-CRETE 15 —

8 pounds=1 gallon
400 square feet=1 gallon
AGE—UNLIMITED

STA-CRETE 15 —

UNADULTERATED
No Solvents — No Fillers

STA-CRETE 15 —

AN EPOXY

- that Bonds Concrete
- Waterproofs
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*You're an Estimator * *
By accurately calculating the age,
weights and measurements of our gal—
a Sta 'N Play kit is yours.*

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138

PNEUMATIC PLACER

E/E Schwing Placer permits the conveyance of concrete over long distances and to considerable heights, at low air consumption figures. Most popular size is 18 cu. ft. capacity, but designed in sizes to fit your needs. Operated by air supply from top of blowing chamber. Auxiliary air stream forces whole charge into pipeline in continuous column.



OUTPUT TO 40 C.Y. per hour through 4", 6" or 8" pipeline.
Write for complete details.

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Rosco Engineered to out-work your toughest jobs

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CONTRACTORS AND ENGINEERS

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JOB NO.		CHART NO.		CHARTED BY		DATE		PRICE		GANG PROCESS CHART	
UNIT QUANTITY (what is done)										PROJ. NO.	
UNIT CLASSIFICATION										UNIT COST	
FUEL										AT RATE PER HR	
INTER RATES HERE										UNIT COST	
What is done? Step by step breakdown of work done or to be done.										Total cost	
Main Ready Man/Tools/Equip/Net'l										Total cost	
Delays/Idle Time										Total cost	
1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24
Total above labor & material costs below.										Total cost	
Total cost, per unit.										Total cost	

Figure 1

Setting forms for concrete pavement, for instance, is a simple job but one which is repeated day after day. Here is a place where it pays to chart and study every move made by both men and machines.

Any intelligent foreman can be taught to use this system in a few hours. Simple arithmetic is all that is needed to perform the calculations.

Estimating time per step

The three basic types of process charts all have one thing in common—estimating the time required for each step, in minutes or hours. Here is where field experience counts, in knowledge of what men, or a combination of men and machines, will produce under average conditions.

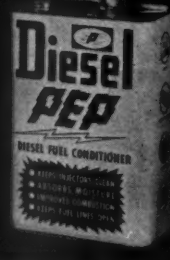
In the old days, estimating was simplified by the fact that most work was done by hand labor and a knowledge of man-hour production was sufficient. Those days are gone forever; we are in a new era of man-machine combination. Where an estimator could in the past visualize production from a gang of men very easily, he finds it impossible to do so

when he is dealing with the man-machine combination.

For example, on highway work today's estimator deals with a mechanized train—form-setting rig, fine-grader, paver, vibrating screed, finishing machine, water and materials trucks operating as a continuous mechanized unit. Each of these units must have a capacity to keep in step with the others. It is impossible to form an accurate picture of the process as a whole without committing it to paper.

If the erection of structural steel for commercial and mill-type buildings is being charted, the ironworker foreman, ironworkers, crane operator, oiler, crane, and air compressor have to be considered. What tonnage will this crew erect per shift, including all the make-ready? In a classical sense, the estimator, trying to visualize the existing job conditions, mentally arrives at a production in tons per shift. In the process-chart method, he must still be able to estimate production once the crew begins erecting steel. However, the local and job conditions require that many

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things be done—such as move-in, make-ready, sorting steel, moving equipment into position, building support ramps for the equipment, temporary shoring, guying and plumbing columns—or dozens of other possible preliminary moves that are peculiar to the job under way.

Looking over the job and estimating all these possible moves, then making snap judgment on the visualized picture as a whole without breaking it down into its various parts, is a considered guess. In fact, the time taken by crew and equipment in actual steel erection may be less than all the preparatory moves. In process charting, it is these auxiliary but necessary steps that can be identified and pinned down for separate consideration, for the element of

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All Vibration is in compaction plate—No vibration in engine or handle. Less operator fatigue—Minimum engine maintenance.

More compaction per pass. (Up to 4000 lbs. force 7000 times each minute.) Saves time—eliminates extra passes.

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Equipped with standard engine—standard float type carburetor—standard gas tank—standard crankshaft.

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Protect against nuisance damage claims when pile driving or using explosives

Pile driving and excavation or demolition explosions set up vibrations which owners of near-by buildings may claim caused property damage.

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This seismograph is accurate to within 0.1%, so you are able to determine the true magnitude of vibrations and know their effects.

The unit can be carried to any job site. It weighs only 38 lbs. and measures 25 x 10 x 8 inches. No external power source is needed.

No technical training is required to operate the instrument. It takes only minutes to set up.

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Made to fit your requirements—large or small. Complete units, like the Liftomatic, which reaches up to 90 ft., carries 1200 lb. load with electric or gasoline power—or Contractors' Drum Hoist Units, single or double drum, with capacities from 500 to 5500 lb. single line, pull. Optional power.

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Construction Camera



On an earthmoving job for Lindahl Bros., Chicago, this Mack B-42 has cut fuel consumption in half with a Cummins C-160 diesel engine. The gasoline engine it replaced used 60 gallons a day on this job, which requires a large percentage of idling time in travel through congested streets.



A section of an aluminum pedestrian crossing being handled by a strongback will be used in a footbridge spanning seven sets of railroad tracks in the Kenmore area of Akron, Ohio. More than 40,000 pounds of metal supplied by the Aluminum Co. of America will be used in the bridge.

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management

(Continued from preceding page)

time involved.

There are other factors that must be considered in all estimating. Louis Dallavia in his "Estimating Production and Construction Costs" uses a stated production for a basic crew, using average union wage rates, and then advises adjustment for local and seasonal factors.

In the steel-erection job previously mentioned, the Dallavia cost per shift for a basic crew is \$296. The estimated cost per ton is this cost divided by the estimated production per shift. This may be 10, 15, 20, 25 tons, etc., per shift. At 10 tons per shift the cost is \$29.60 per ton. This assumes that small tools, supplies, etc., are estimated separately.

After adding to or deducting from basic-crew members, the cost and production figures must be adjusted through the use of conversion factors

NEW...IT'S LIKE USING A 10 TON ROLLER

2,500 times per minute, our sensational M 18 Muller Masher hits with a force of 2,700 lbs. equal to a 10 ton roller. Travels up to 75 ft./min. Compacts up to 50 cu. yds./hr., with 6" lifts. Can be used anywhere, anytime.

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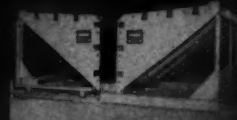
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CONTRACTORS AND ENGINEERS



Concrete is placed for a foundation with a 14-inch overhang at the site of a new battery factory being built for Globe-Union, Inc., in Geneva, Ill. Henry C. Beck Co., the contractor, is using 4,000 cubic yards of concrete on the job and 11,000 square feet of Symons forms, which are stripped every third day.

Nearing completion is this dual truss-type bridge, spanning the Lake Washington Ship Canal in Seattle. Part of the Seattle Freeway, the \$13 million 2-level bridge requires 11,400 tons of structural steel, fabricated by Allied Structural Steel Cos., Chicago, and erected by Industrial Construction Co., Minneapolis.

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ENGINEERS INSIST ON FIELD-PROVEN Ryan EQUIPMENT



Engineers responsible for maintenance of right-of-ways, median strips, boulevards, parkways and other large grass areas insist on proved equipment that will do the job fast, efficiently, and without costly breakdowns.

They choose the RYAN RENOVAIRE to aerate turf damaged by winter-kill, erosion, and over-compaction. This ruggedly constructed renovator opens thousands of small holes in the soil to permit water, air, and fertilizer to reach the root zone. This cultivating action ensures maximum water penetration, encourages deep root growth and, consequently, prevents soil erosion.

Two tractor-drawn models are available. Both the 54" and the 96" sizes have individually suspended aerating wheels that hug the ground, regardless of its contour. Operating speeds up to 10 M.P.H. can be safely maintained. For maximum versatility, three styles of aerifying and cultivating tines are available. A hydraulic pump quickly raises aerating wheels to transport height for fast movement from job to job.

SOD CUTTERS

RYAN Sod Cutters can always be depended upon to give satisfactory performance. Whether your job calls for thousands of square yards of sod for highway or industrial construction, or just an occasional repair job, RYAN engineers have designed a model and size to suit your exact requirements. Heavy-duty models cut up to 300 sq. ft. of perfect sod per minute. Automatic cut-off, sealed lubrication, two-speed transmission, fingertip controls and, perfect balance are just some of the features that make the RYAN Sod Cutter the unquestioned leader in the industry.

Write for full particulars on these and other RYAN products and name of the nearest RYAN distributor.



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—such as local wage rates and the efficiency of the crew—considered as low, average, or good. Low production has an efficiency range of from 25 to 55 per cent; average, 55 to 85 per cent; and good, 85 to 100 per cent. The efficiency rate will depend to a great extent on economic conditions, the amount of work to be had, the efficiency of labor and supervision, the nature of site conditions, the weather, anticipated equipment production, and whether the job is "straightaway" or split up into that of various elevations, etc.

Consider all factors

It follows, therefore, that if when estimating we assume an average job under average conditions, we still need to consider all the factors stated and consider these along with historical production figures in order to arrive at the time per step. Whether one uses Dallavia's methods of basic-crew production per shift or the old classical methods, the conversion factors must be applied in one way or another.

In methods other than process charting, abnormal factors such as special equipment setup time must be ignored—or estimated as separate items. Process charting recognizes no average jobs or average job conditions but lists and measures all the steps for each particular job, reducing the intangibles to a minimum.

If one looks at the job as a whole, in order to estimate production and costs per ton, there is more chance for error than when each of the dozen or more parts is estimated separately, in which case errors and misjudgments are likely to cancel each other out.

In estimating the time element for each step of the work in process charting, there is no substitute for knowledge and experience as to what men or machines can accomplish in a stated time under low, average, and good conditions. If equipment minimum and maximum production ranges are a controlling factor, the job is made easier since these figures are available through the equipment manufacturers.

(Next month's article will deal with "Man and Machine Charts.")



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waterways

From 40 to
300 hp, gas
or Diesel.
Model shown,
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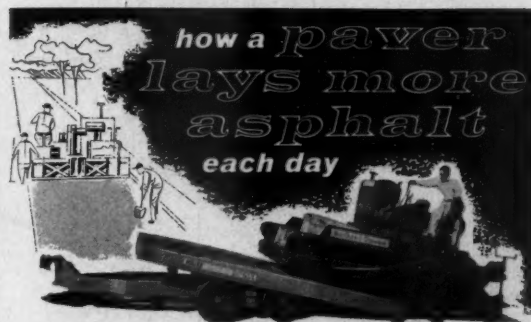


If you need easily installed power, better steering control, safety in shallow water, easier maintenance, more efficient performance, simpler hull design, more cargo space or simplified crew operation... you should investigate Harbormaster Outboard Propulsion and Steering. Harbormaster is a complete power and steering package... powerful, highly maneuverable, economical to operate and maintain.

See for yourself what Harbormaster Marine Tractors can do. Send for big illustrated Catalog. If you have a requirement, our Marine Architect will make recommendations without obligation.

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each day

with a **MILLER Tilt-Top**

Miller's super fast, drive on tilt loading permits a paver operator to pick it up after laying each asphalt strip and return to the starting point at truck speed rather than a bare four mph. Just one example of how MILLER TILT-TOP's super-fast loading cuts non-productive time... lets you cover more jobs with fewer rigs. A variety of models from 4 to 20 tons with over or between-the-wheels platforms handle most rigs you use. See these production boosters at your local distributor now!

models from 4 to 20 tons

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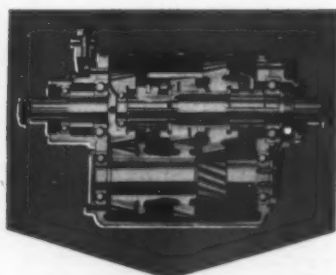
Construction Camera



A trench for a 12-inch clay sewerage line in Baton Rouge, La., is excavated by a Unit Model 1220 trench hoe owned by the Wilson P. Abraham Construction Co., Baton Rouge. When completed, the trench will measure 88 feet long and will be used for the main trunk line in the city's new sewerage program.



Some 65 feet of 108-inch-diameter asphalt-lined corrugated metal pipe is being installed to serve as bypass for an outfall line during construction at Los Angeles' Hyperion Sewage Treatment Plant. The pipe was fabricated and lined by Pacific Corrugated Culvert Co. of Southern California.



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Limestone institute elects '61 officers

■ Robert M. Koch has been re-elected president of the National Limestone Institute, Inc., Washington, D. C.

Other officers elected for this year are: L. R. Falk, chairman of the board; William J. Clark, first vice chairman; Roger E. Meshberger, second vice chairman; and J. B. Mount, secretary-treasurer.

Other staff officers are Samuel Omasta, vice president; Charles B. Sonneborn and Howard W. Mays, Jr., assistants-to-the-president; and Arthur E. Scribner, staff engineer.

U. S. Steel appoints

■ United States Steel Corp., New York, N. Y., has named Norman M. Sted assistant general manager of sales in the general sales department of its American Steel and Wire Division, Cleveland, Ohio.

Since 1957, he has been central-area manager of sales for the division.

ARPS Trench Devil

MODEL L-12

CHALLENGES
ALL
COMPARISON

- DIGS WIDER - DEEPER - FASTER THAN ANY KNOWN COMPETITION
- COSTS LESS TO BUY - OPERATE - MAINTAIN
- SPEEDS UP TO 1200 FT. PER HOUR

GET THE FACTS

and complete specifications on the Trench Devil from this specially prepared brochure.



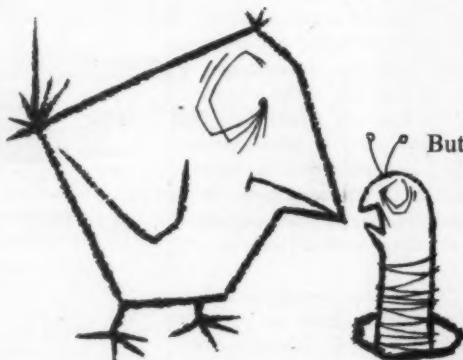
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MA-2 - Self Propelled. Slightly less capacity than L-12
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Dependable service means profits to boot
all contractors love it!
Vertical caissons, or battered, to suit
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The argument's clear, my friend resolute
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CONTRACTORS AND ENGINEERS

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NGINER

A new gas line is under construction for Consumers Gas Co. near Toronto, Canada, and the trench is being dug by a Minneapolis-Moline backhoe-loader combination. The job, which is handled by Corcoran Pipeline Construction, calls for the installation of approximately 7,100 feet of 1-foot pipe.

Swinging a 3-yard bucket on an 80-foot boom, this Lorain 85-A digs rock 35 feet below the surface of this flooded quarry for Ferncrest Quarrier, Fort Lauderdale, Fla. Up to 1,800 yards a day is stockpiled to be loaded out to trucks by two shovels for hauling to the crusher.

Rockwell-Standard buys into Argentine firm

Rockwell-Standard Corp., Coraopolis, Pa., made its first foreign license arrangement for manufacture of the firm's springs when it acquired an interest in Artimsa, S. A. I. C. of Buenos Aires, a manufacturer of suspension springs and diesel engines. The venture will include the licensed production of leaf and coil suspension springs by the Argentine firm.

The license agreement between Artimsa and Rockwell-Standard calls for a new plant to be built in the Buenos Aires area.

Thor appoints

Kenneth W. Nelson was recently named a regional sales manager for the Thor Power Tool Co., Aurora, Ill. His territory, designated as zone 4, will extend from the Carolinas north through the New England states, including Thor's Boston, Buffalo, New York, Philadelphia, Pittsburgh, and most of its Richmond territories.

Nelson's headquarters will be at Thor's branch in Long Island, N. Y.

POWERFUL 9+2 TRANSISTOR POCKET WALKIE-TALKIE

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APRIL, 1961

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CONTRACTS AHEAD OF
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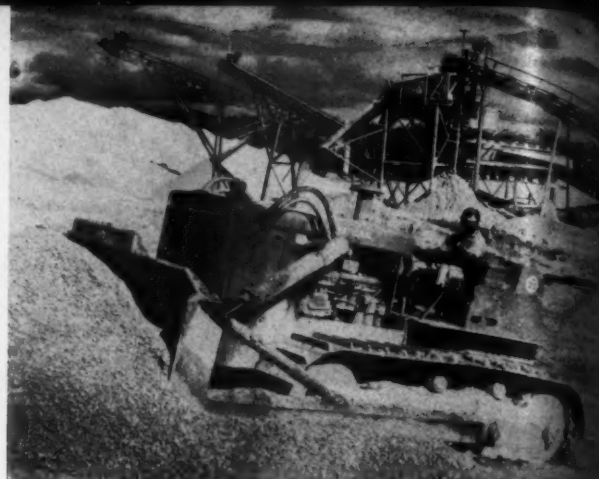
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BETTER DIGGING POINTS FOR OVER 30 YEARS

FOR MORE FACTS, SEE REQUEST CARD ON PAGE 16 AND CIRCLE NO. 422

Construction Camera



Excavation work on a trench prior to pipe installation at the Shell Oil Co.'s tank farm at Sewaren, N. J., is handled by this Payloader Model H-30 tractor shovel equipped with a Wain-Roy backhoe. The Hough unit, owned by Harrison & Sons, Inc., Clark, N. J., has an operating capacity of 3,000 pounds.



Crushed coral rock is stockpiled near Barbers Point, Oahu, Hawaii, by this International TD-25 owned by Oahu Aggregates, Inc. The rock is loaded by draglines from below sea level and goes to the conveyor and crusher dripping wet. Production is 2,500 tons daily.

DRILL
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3 TIMES FASTER than
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hard brick and tile to
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are precision
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Automotive test track built by Goodrich

■ A 9-mile circular automotive test track under construction near Pecos, Texas, by the B. F. Goodrich Co., Akron, Ohio, will be operated under a lease agreement by Automatic Proving Grounds, Inc., a newly organized company with headquarters at Pecos.

In addition to testing tires for Goodrich, the new company will sell the services of the proving grounds to other companies.

The testing company was formed by Frank E. Harper, who has been Goodrich's director of employee relations since 1957.

Clark division names

■ Stanton D. Needles has been named a district service representative for the Construction Machinery Division, Clark Equipment Co., Benton Harbor, Mich. He will be in charge of service for the Michigan line of construction and bulk-materials handling ma-

chinery in Illinois (excluding the Chicago area), Iowa, Nebraska, and South Dakota.

Needles formerly was a service instructor in the division's service training center.

B&D division names

■ Several new sales representatives have been appointed by the Consumer Products Division of Black & Decker Mfg. Co., Towson, Md., to its sales districts throughout the United States.

Those named are, for the New York district: J. C. Killeen, metropolitan New York, and C. H. Theodore, Massachusetts; Cleveland district: H. P. McNally, Buffalo-Rochester area; Cincinnati district: R. A. Schlosser in the Lansing-Grand Rapids-South Bend area, A. J. Condoridis in the Cincinnati-Louisville area, and J. K. Fitzgerald in the Columbus-Dayton area; Atlanta district: G. B. Hobbs, Jr., Chattanooga area; Chicago district: D. S. Peet, the Dakotas area, and J. F. Unger, metropolitan Chicago.

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TRANSISTORIZED WARNING LIGHTS
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40 ton capacity triple-axle trailer weighing just 11,800 lbs. Lightweight trailers ranging capacities of 30 tons and up are now available in high strength "T-1" steel.

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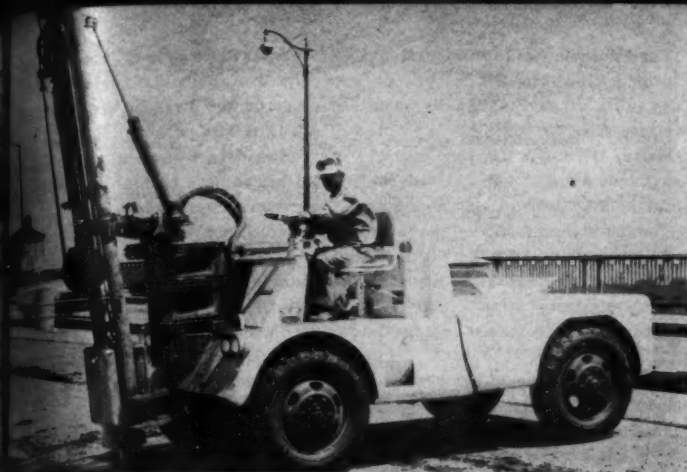
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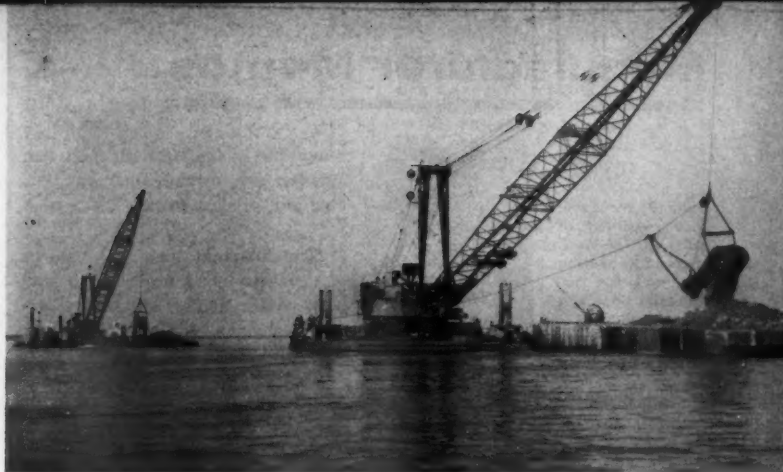
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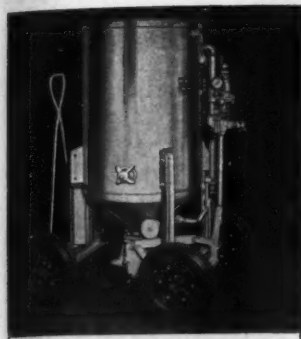
ENGINEERS



Removal of old pavement on Toledo's Anthony Wayne Bridge was speeded by this Ottawa Commando Hydra-Hammer pavement breaker. Two such units slice 11½-inch reinforced-concrete pavement into 6 X 9-foot sections. In full operation, crews removed 2,800 square feet of pavement in each 8-hour shift.



Preparing the way for the larger vessels that will soon use the channel at Sault Ste. Marie, Mich., two Manitowoc Model 4500's load barges with material dredged from the waterway. This is one of the many channel jobs under way in the area for the U. S. Army Corps of Engineers.



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HRB report on measuring road roughness, skidding

■ A new 35-page bulletin, "Road Roughness and Skidding Measurements: 1960," has been issued by the Highway Research Board, Washington, D. C.

The publication contains the following reports, illustrated with photographs and tables: "Devices for Recording and Evaluating Pavement Roughness," a review of the history of devices for measuring pavement roughness, and the development of

such measurements for analytical purposes by the California Division of Highways; and "Measurements of Pavement Friction by a Decelerometer," a paper describing the results of tests performed with a commercially available simple portable decelerometer.

The bulletin, No. 264, is available at a price of \$1 from HRB at 2101 Constitution Ave., Washington 25, D. C.

Engineered Equipment names sales manager

■ Norm Bullock has been appointed national sales manager for the Masonry and Concrete Saws and Blade Division of Engineered Equipment, Inc., Waterloo, Iowa.

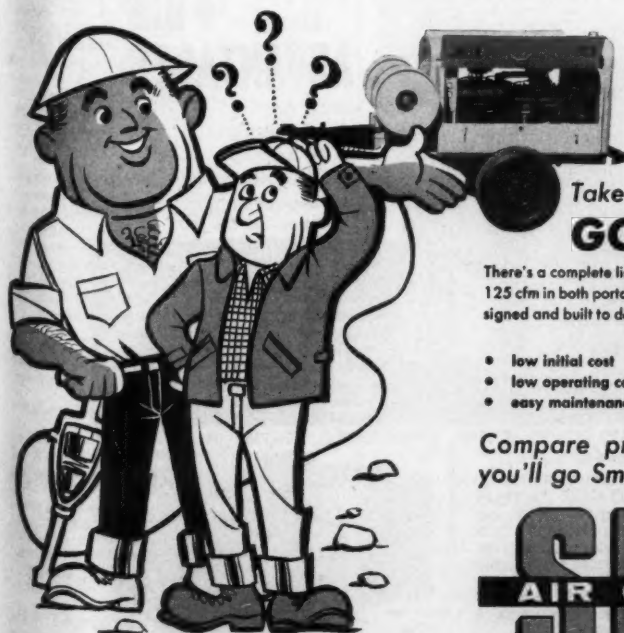
Since joining the company, Bullock has been instrumental in redesigning the company's Tri-Line concrete saw, and in adding new features to its masonry saw. He has also added new

blades to the company's Diamond Blade line.

Firestone promotes

■ Frank A. LePage has been appointed senior engineer in charge of all engineering for the foreign tire plants of The Firestone Tire & Rubber Co., Akron, Ohio.

Before his promotion he was chief engineer of Firestone's tire plant at Sao Paulo, Brazil.



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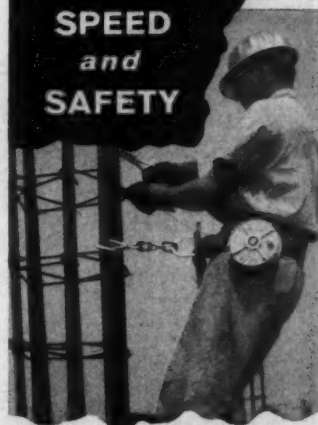
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Manufacturer Memos

John J. McGlone, vice president of sales for The Wellman Engineering Co. and the McDowell Co., Inc.



John J. McGlone has been elected to the newly created position of vice president of sales for the affiliated Cleveland-headquartered companies, The Wellman Engineering Co. and McDowell Co., Inc.

McGlone formerly served as Chi-

cago district manager for both companies, representing their engineering and product lines.

The Dunham Mfg. Co., Minden, La., fabricator of heavy dump trailers, dump bodies for trucks, and truck-mounted concrete mixers, has appointed Dave Wilson general manager. For the past 11 years, Wilson has been general manager of the Clement-Braswell plant, Minden.

Dunham is a division of Anderson-Dunham, Inc., Baton Rouge, La., which operates a concrete-pipe factory, a metal-culvert factory, asphalt plants, and quarries.

The Flintkote Co., New York, N. Y., has made appointments to two new sales posts in its Building Products Division.

Melvin W. Searls has been named merchandising director. He will coordinate and develop the division's marketing program, and will have direct responsibility for activities of merchandising managers in the building-products section. He will also continue to supervise the Insulrock Division.

Thomas J. McDonald has been appointed sales director. He will be in charge of coordinating the field selling activities of the building-products sales organization through its regional offices. He was previously assistant to the vice president in charge of sales.

Frank R. Demmerly has been appointed to the newly created position of corporate controller of the Yab & Towne Mfg. Co.

Edward D. Gorton and Samuel A. Rockwood have been appointed eastern and western sales managers, respectively for Trojan tractor showing. Gorton will direct activities in all states east of the Mississippi River with the exception of Wisconsin, Illinois, and Indiana, as well as the Canadian provinces of New Brunswick, Newfoundland, Nova Scotia, Ontario, and Quebec.

Rockwood has responsibility for all states west of the Mississippi River, plus Wisconsin, Illinois, and Indiana, and the provinces of Alberta, British Columbia, Saskatchewan, and Manitoba.

Big 1-minute gun
designed and budget-priced
for contractors and engineers

American
made AT ONLY
\$527
(WITHOUT COMPASS)
**BERGER
POLARA**
MODEL 57-916



Contractors and engineers doing accurate construction need the assured accuracy of a 1-minute transit—and welcome the economy of the budget-priced Berger Polara. Over 90 years of Berger transit-making experience went into its design to put all these features within every contractor's reach:

5 1/2" dia. Horizontal Circle of corrosion resistant aluminum alloy divided to 1/2 degrees. Double opposite verniers read to 1 minute.

5" dia. Vertical Circle with double vernier reading to one minute. Fully protected by removable guard.

22 power coated optics. One piece 10 1/2" bronze telescope with internal focusing. Focuses from 3 feet to infinity. Resolving power of 4 seconds. Reticle stadia lines at fixed ratio of 1:100. Telescope transmits from either end.

Telescope vial—precision ground to sensitivity of 40 seconds per 2 mm division. 2 plate level vials—precision ground to sensitivity of 80 seconds per 2 mm division. Bronze repeating centers. Bronze leveling head. Fully enclosed nickel silver leveling screws precisely fitted into replaceable bronze bushings.

Water resistant, dustproof compass. 3" needle. Graduated to 1/2 degrees. Adjustable for declination. Optional \$27.00 extra.

Mahogany transit case, sunshade, plumb bob, magnifier, spanner wrench, adjusting pin and screw driver. Stiff or extension, regular or wide frame tripod available—not included in instrument price.

LOW COST TRANSIT-LEVEL FOR CHECKING INTERMEDIATE STEPS—the Berger Master Builder Convertible Transit Level that reads to 5 minutes. Only \$197.50 (tripod extra).

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Engineering and Surveying Instruments Made in America by American Technicians... Since 1871

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Atlas Copco, Inc., New York, N. Y., has named Howard C. Shepard chairman of the board.

Peter Redpath was elected president of the company. He formerly served as vice president of sales for Canadair, a subsidiary of General Dynamics.

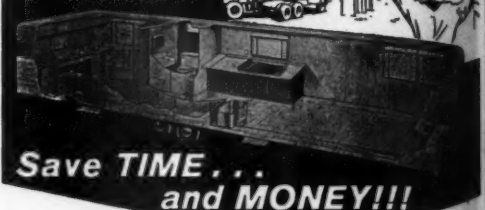
C. E. Burton, previously vice president of Atlas Copco Pacific, which merged with Atlas Copco Eastern at the beginning of the year to form Atlas Copco, Inc., is executive vice president of the new organization.

Vice president in charge of the eastern division is R. G. Chambers. He formerly was western superintendent in Vancouver for Atlas Copco Canada.

Robert W. Pollock is the new assistant to the president of Buck Equipment Corp., Cincinnati, Ohio, manufacturer of heavy-duty hoisting machinery for construction.

Pollock will have duties in the fields of administration, sales promotion, advertising, and general public relations.

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UNITS...**



Save TIME... and MONEY!!!

MOBILE OFFICE Units are low in cost... Built to your specifications... There's a unit to fill your every need.

Because MOBILE OFFICE Units are easy to move from job to job, they enable you to have office, engineering, paymaster and other facilities at every point of your operation.

These units are economical, time saving, rugged and durable. They are self-containing, and are available with air-conditioning, and can be fitted to your specifications.

MOBILE OFFICES are being used by major contractors and other major businesses throughout the United States. In every case they have proven their worth.

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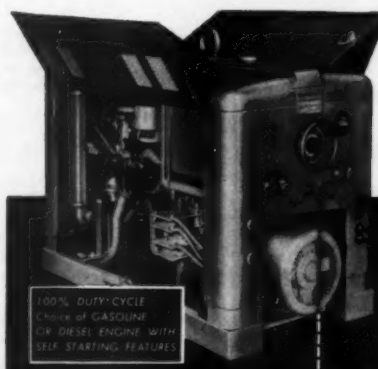
MOBILE OFFICE, INC.
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7314 Stony Island Avenue, Chicago 49, Illinois
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Combination WELDER/POWER/"TIGPAK"
offers — **4 BIG
ADVANTAGES**

Use it for —

1. DC welding
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3. 10 Kw AC auxiliary power
4. Tungsten inert gas welding out on the job



A new and versatile unit for more profitable welding operations. You can weld AC or DC, run tools, lights, motors, etc. Ideal for emergency 110 v. AC power plus either AC or DC welding. Also offers the extra advantages of tungsten inert gas welding in the field, for welding aluminum, stainless, regular mild steel, etc.—when used with Hobart's TIGPAK illustrated below.

FOR TUNGSTEN INERT GAS (TIG) WELDING, SIMPLY CONNECT "TIGPAK" UNIT TO WELDER. Here's the answer...

to get the best possible results from TIG welding IN ANY LOCATION. This remote control unit goes right to the job, connected to a welder power source by an ordinary welding cable. Especially designed for use with Hobart's combination Welder Power unit. Also connects to any DC gas drive welder power source if a 110 v. power source is available.

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CORRUGATED METAL CULVERT PIPE BY WHEELING



STANDS UP UNDER 100 FEET OF FILL!

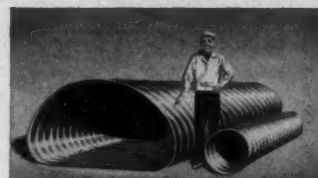
Amazing as it seems, this 8-gauge, 54" Wheeling Corrugated Metal Culvert Pipe is under 100 feet of fill ... and can take decades of abuse!

Unlike heavy, rigid pipe, flexible Wheeling Culvert Pipe adjusts to changing pressures caused by shifting fill ... uses the surrounding earth to help it carry the unusually heavy load of fill shown here.

Supplied in copper-bearing steel

or copper-bearing pure iron ... plain galvanized or bituminous-coated after galvanizing ... with or without paved invert ... Wheeling Corrugated Metal Culvert Pipe and Pipe Arch come in a wide range of gauges and diameters. Ask your Wheeling man for full details.

Or write Wheeling Corrugating Company, Wheeling, W. Va.



Use Wheeling Pipe Arch (left) where headroom is limited; Wheeling Small-Diameter Culvert Pipe (right) for most roadside drainage.

WHEELING CORRUGATING COMPANY - IT'S WHEELING STEEL!

Warehouses: Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Martins Ferry, Minneapolis, New York, Philadelphia, Richmond, St. Louis. Sales Offices: Atlanta, Houston, New Orleans.

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Surveying Washington..

by E. E. Halmos



A tempest is already arising—and it's one of more than teapot proportions—over results of that just-completed AASHO Road Test. And official results are still not put together in a final report, which isn't due, by the way, until about October. But two major industry groups have already

been using some of the figures and contesting each other's claims through the medium of publication in widely read journals and advertising.

Not unexpectedly, the protagonists are The Asphalt Institute and the Portland Cement Association. The controversy apparently started with

the publication last November (in the respected *Journal of Commerce*) of an article on the Road Test signed by J. E. Buchanan, Asphalt Institute president.

In the article, Buchanan stressed the point that the Road Test was not conceived as an "elimination contest" between paving types, commented that "it is now apparent . . . that the basing point thickness for asphalt pavements was too thin, and for concrete pavements . . . too thick." He added that the tests "appear to indicate" that the AI design curves are substantially on target, and concluded with praise for asphalt's advantages,

including its use in stage construction.

One group of statements in Buchanan's article, however, aroused the ire of PCA. Said Buchanan:

"Some persons, more concerned with grabbing a better competitive position in the market place, have been trying to promote the idea that this was an elimination contest between two paving types. Nothing could be further from the truth."

"Unfortunately, these tactics impose on the asphalt industry the burden of explaining to the uninitiated the conditions of the test."

PCA waited until March 6 to answer AI's article in public, and it answered with a double-barreled attack—a news release to the general press, timed to coincide with 2-page advertisements in five national magazines.

In its advertisements, PCA used some figures it said were the results of the Road Test: It claimed that 74.6 per cent of the concrete sections (as against 23.6 per cent of the asphalt sections) "survived at the end of traffic."

"Repeated failure information shows that concrete was ahead in durability by a wide margin," said PCA, "throughout the two years of pavement testing under heavy truck loads. After the first 100,000 load applications, none of the concrete sections in the main experiment had failed, but 32 per cent of the asphalt sections were 'out of test.' This covered a 6½-month period, including the spring season of 1959."

"At approximately the halfway mark of the test, when 600,000 axle loads had passed over the test loop, 1½ years had elapsed, 89 per cent of the concrete sections had survived, and 37 per cent of the asphalt sections remained in test."

"The test sections were checked every two weeks for roughness and other factors affecting riding quality. Here, concrete had an even more decisive margin of superiority over asphalt for retaining surface rideability."

Before releasing its advertising broadsides (which were headlined "Concrete Wins over Asphalt The Basic Ways"), PCA notified the AASHO and its highway-department members of its intentions.

The controversy—as most construction men well know—is one of long standing. AASHO itself kept official silence on the matter, but it was obvious in Washington that officials were much concerned.

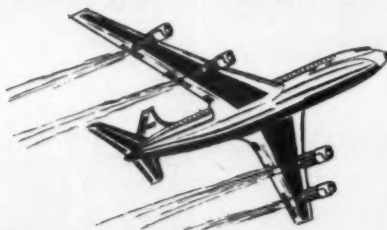
The big worry was that a controversy starting before official reports are available might discredit the whole effort—just as pre-report battles over a test road operated in Maryland some years ago (here the disputants included truckers) inadvertently but largely discredited the results in the public mind.

There was also ample evidence in Washington that both protagonists in the current spat would be glad to end the whole thing off, if that were now possible.

HEAT ASPHALT WITH JET SPEED

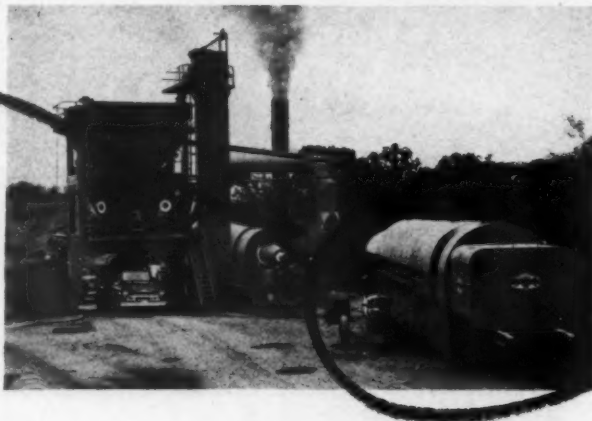
WITH THE MODERN
**CHATTANOOGA
"M"
HEATER**

(Model 106-0)



ONE COMPLETE PACKAGE

- Heavy-duty Hot Oil Heater—1178 sq. ft.—the "GUTS" of any asphalt heating unit.
- 15,000 gallons of asphalt
- 9,500 gallons of fuel oil
- Immersed fuel preheater
- Fully automatic controls
- All on trailer with tandem-axle, air brakes and lights



**THE CHATTANOOGA
"M"
HEATER**

1. MEETS ANY STATE SPECIFICATION
2. ELIMINATES NIGHT AND WEEKEND FIRING.
3. CUTS ASPHALT HEATING COSTS TO THE BONE
4. IS THE PERFECT TEAM-MATE FOR ANY ASPHALT PLANT

"Ask the man who owns one" — Names furnished on request

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